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Two Years' Experience With Gas-treated Combs

By Leroy F. Baxter

EXPERIENCE is a good school, but the tuition sometimes comes high - in my case approximately \$3,000. When I first heard of the gassing method for the eradication of foulbrood I became greatly enthused over the prospect of a quick and easy cleanup. It all seemed so simple, easy, and certain of results that I began to think that after all foulbrood was only a plaything. Accordingly, as I wrote in last Feb., 1929, issue of American Bee Journal. I built a gas room so that I might sterilize the combs on a rather large scale, and started in to make a cleanup. Well, it proved to be a cleanup all right, but not of foul-brood. I was destined to bump up against problems not in the original textbook. The first result accomplished was the killing of my bees. This was the result of formaldehyde poison and was due to the fact that the combs had not aired sufficiently. But just how long is it necessary for combs to air to be safe to give bees? I do not know. The combs upon which my bees were shaken a year ago were in the gas room seven days. They were then taken outside in the open air, stacked up crosswise to give the air as free course as possible and left for five days before giving to the bees. No odor of formaldehyde could be detected; nevertheless, colony after colony of my strongest bees died over night when shaken on but five of these combs to the hive.

I gathered up the combs from these dead colonies, put them in the hives minus the bees, stacked them away for the winter, thinking that surely they would be safe for the package bees to be put on next spring. The next spring (last April) I bought 250 three-pound packages of bees and put them on these same combs. The results proved to be very similar to those of the first. Many packages died entirely in a day or two and most of the rest began

to dwindle down, and continued to dwindle until package after package became extinct. Besides all this, I never experienced such a loss of queens. I bought over fifty queens to requeen packages that went queenless. This spring loss of both bees and queens I am sure was the result of the formaldehyde poison still in the combs. Other beekeepers here got package bees about the same time, but experienced no such loss even when placing the bees on foundation, so it was not climatic conditions. My spring loss continued until I had to order more bees, so I bought a total of 372 packages. These last were gotten so late and so many of the first ones failed to build up in time to take advantage of the honeyflow, that my honey crop will not much more than replace what I spent for bees this

But experience has shown how I could have avoided all this loss of bees, and honey crop too, had I used the simple expedient of soaking the combs in water before giving them to the bees. This fall I shook my foulbrood colonies exactly as I did a year ago, except that I shook them on ten frames instead of five. These combs were in the gas rooms and subject to the gas all summer for fourteen weeks. They were taken out and placed in a large tank and soaked for thirty-six hours and the water shaken out by hand. They were taken out to the yard the same day and the bees shaken on them while they were still wet. They were not aired at all. And while that was done over a month ago, up to this present time I have not found a single colony that has ever shown any signs of poisoning, and I shook 128 colonies at that. What a vast difference a little water makes! The shaking this fall and a year ago was done under exactly the same conditions-that is, it turned off rainy

and cold just after shaking both times. They were shaken both times from October 10 to 15, but this year, instead of my bees dying, they took to the combs readily even though wet and cool, and in some instances the queen started laying in them within twenty-four hours.

But fall shaking on empty combs has only proven a partial success with me. I am sure it would be entirely successful if the bees could be forced to disgorge the honey carried over in their bodies and that gotten rid of. This could be accomplished if they were starved long enough, but that is not as easy as it would seem to be. This fall, after starving them for forty-eight hours, I found a few cells of stored honey in most colonies. But some were becoming weak, and as it was quite cool at night I was afraid of chilling them if I waited longer to feed, so I gave them all syrup. I have lately examined a number of these colonies shaken and in several cases I found that the disease had been carried over. Over 50 per cent of my colonies showed disease this fall when examined before I started in shaking. Several showed no signs of disease all summer, and when examined the latter part of July and first of August were pronounced clean, but when examined again the first of October I found dried-down scales, but no sealed or sunken capped cells with dead larvæ. It is strange that the disease would show up in the last cycle of brood. Comparatively few of my colonies became rotten with the disease, this summer, though.

All of this disease did not come from imperfectly sterilized combs and it would be unfair to charge it all to failure of the gassing method. Thirteen foulbrood colonies were shaken on foundation last July. Of this number, four showed the disease late this fall or over 30% Surely this

count can not be charged to the failure of the gas.

One hundred and twenty-four of my colonies were on gas treated combs in which no foulbrood showed up during the entire year. Much of the disease which showed up early was, no doubt, carried over by the bees themselves when shaken last fall, as experience this fall has shown the disease to have been carried over in several instances, just how many I will not know definitely until spring.

One hundred and twenty-eight colonies showed foulbrood, many of them only a few dead cells or scales and were shaken on treated combs. From this it is evident that by treating my entire lot of combs, even though they were not 100% sterilized, the disease was given a setback. And this winter, by using one gallon of formalin to each 120 brood combs and leaving them in the gas until needed next summer, I am confident that the disease will be eliminated.

By soaking these combs in water after taking them out of the gas, they can be safe to give to the bees at once; in fact I believe it is better to do this because if they are stacked away wet, they are bound to mould. I lost quite a number of combs by moulding last spring. It is hard to get them dry enough not to mould if packed away. If given to the bees wet, they will take care of them.

A peculiar thing about fall shaking is this: No matter how long the colony has ceased brood rearing, and no matter how dried up the queen has become, invariably she will start egg laying again. This is what causes the carry-over of the disease. It would probably help to cage the queen for several days, but then it is no small job finding her after she has ceased laying.

Now for some details on gassed combs. All my combs were given five gallons of formaldehyde to each 120 supers, or 1200 combs, except one lot, which received double. That is, I boiled off five gallons into the gas room, connecting the boiler and gas room with a piece of garden hose. In all instances but one the sterilizing was complete in the open cells, but showed incomplete in from 10 to 30 per cent of the sealed brood-that is, from 70 to 90 per cent of the sealed cells were sterilized, and all open cells which contained foulbrood scale. The time of gassing was from seven days to twenty-eight days. The lot of 1200 combs which were gassed twentyeight days were given ten gallons of formaldehyde - that is, one gallon for each 120 combs, or twelve su-pers. Three samples from this lot of combs were sent to the United States Department of Agriculture for testing on November 17 last year. I will quote the result of this test under date of December 3, 1928: "Your letter of November 17 is received, as well as the three samples of comb, Nos. 15070-1, 15071-2, and 15072-3, treated for American foulbrood with formaldehyde gas. tests for sterility have just been completed, showing all of the scales in the open cell to be sterile in all of the samples, but showing sterilization to be still incomplete in the capped cells. In sample No. 1, from the bottom of the rack, 10 per cent of the scales from capped cells gave good growth and 10 per cent slight growth. In sample No. 2, from the center of the rack, 20 per cent of the scales from capped cells gave good growth. In sample No. 3, from the top of the rack, 20 per cent of the scales from capped cells gave good growth and 10 per cent gave slight growth."

This lot of combs were taken out of the gas room and stacked up in an open corncrib for the winter. The ioints between the supers were not sealed, but a hive cover was placed on top of each stack of supers, which were stacked up about twelve high. Along in the following March (last March), after these supers had been stacked up for about four months, I noticed a strong odor of formaldehyde about them after the weather had warmed up. I determined to send in samples from these same supers to be again tested to determine what action, if any, the gas had had on them during the winter after being taken out of the gas room and stacked away.

I quote from the Government test the second time on this lot of combs: "April 8, 1929. Your letter of March 21 is received as well as three samples of treated comb, Nos. 15169 (1), 15170 (2), and 15171 (3), which have been tested for sterility. Ten open cells and twenty sealed cells were tested from all of the samples with the exception of No. 1, from which ten sealed cells only were tested. No growth of Bacillus larvæ was obtained from any of these tests, which indicates that the combs were completely sterile. We are conducting additional tests on the sealed cells of these samples and will let you know our results as soon as the tests are completed."

"April 13, 1929. A second test for sterility of your samples of gastreated combs, Nos. 15170 (2) and 15171 (3), which we informed you was being made, has just been completed. Twenty-eight sealed cells from sample No. 2 and sixteen from sample No. 3 were tested. No growth of Bacillus larvæ was obtained from any of them. Sample No. 1 was not tested a second time, since all of the sealed cells present had been previously tested. It appears that sterilization is complete if the combs

which you sent us were fair samples."

All combs which I sent in for testing were those which contained the most sealed cells and which I thought most likely to contain foulbrood hardest to sterilize.

But the most disappointing tests of any which were made came from the last lot of supers, which were placed in the gas room June 26 and left there for fourteen weeks, or through the hot summer months. This lot of 120 supers (1200 Hoffman brood frames) was given five gallons of formaldehyde, the same as all the rest. When the gas room was opened last month the gas was still strong enough to smart one's eyes. I was confident these combs would show 100 per cent sterility, as they had both time and warmth in their favor. I quote the Government tests on five of these combs: "October 18, 1929. Our tests for sterility on your samples of American foulbrood combs, No. 15900, that you treated with formaldehyde gas, are complete. The results obtained are not encouraging. With the first test growth of Bacillus larvæ was obtained from 60 per cent of the sealed cells, but no growth was obtained from the open cells. With a second test, however, slight growth of B. larvæ was obtained from 40 per cent of the open cells and a fair to good growth from 60 per cent of the sealed cells. are unable to account for the lack of complete sterilization of your combs. In our experiments, when one gallon of formalin was poured over the bottom of a tank holding 120 combs, and allowed to vaporize at normal temperature. complete sterilization was apparently obtained from thirty to sixty days in both open and sealed cells. Colonies of bees on these treated combs remained free from disease throughout the season. Perhaps the conditions under which the method is successful are narrowly limited. For instance, there may be more than one strain of B. larvæ and some of these strains may differ in their resistance to sterilization, thus causing the wide variance in the results that have been obtained."

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This is the first test in which any open cells showed lack of complete sterilization. There was a greater proportion of sealed cells showing imperfect sterilization in this test than in any other, too. Why this is so I do not know. Combs which were gassed during the winter months showed all open cells to be completely sterilized, while the sealed cells showed from 70 to 90 per cent completely sterilized. The same amount of formaldehyde was used in each case, but the time was seven days in the first case and fourteen weeks in the last case. This shows far better results during the winter than during the warm season.

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You will note that the Government tests on their own combs used one gallon of formaldehyde to 120 combs for from thirty to sixty days for complete sterilization of sealed cells. This is the same proportion which I ised when I got 100 per cent sterlity by leaving the combs stacked up all winter, but when first taken from he gas room after twenty-eight days' exposure to gas showed only 80 to 90 per cent of the sealed cells completely sterile. This would tend to evolve a formula like this: To each 120 Hoffman brood frames vaporize one gallon of formalin and keep the gas confined to them for at least sixty days. Longer would be safer. And then, if you want to play safe with your bees, wash or soak the combs for a day or two before giving the gassed combs to them. You can take the combs out of the gas, soak them in water for a day or two, shake the water out by hand, and then immediately give them to your bees without any harm. You need not wait for them to dry

The present wholesale price of formalin is about \$1.75 per gallon. This is a cost of about 11/2 cents per comb when using one gallon to 120 brood frames. I wouldn't use any less; and be sure and leave them exposed to the gas for at least two months — more if possible. I have failed to get satisfactory results by using less. And combs that are well filled with sealed brood I would cut out and melt up. If sealed cells are present it is much safer to uncap them. I find this can be easily done by using a wire brush.

I find that there is very little difference in cost, not counting labor, between treating old combs and cutting out and refilling with foundation. I have gotten as much as two and one-half pounds of wax from ten Hoffman brood frames. Add 15 cents, the price of the formalin for treatment, to the value of this wax and compare with the price of wax worked into foundation and I am not so sure that anything is gained, especially if one values nice new combs on wired foundation.

My Latest Report.

I am sending you the report of the Government on the very latest tests I made on treated combs. The first three reports were from a stack of eight supers gassed in my basement and kept warm. The combs were soaked in water for twenty-four hours and I used a quart of formaldehyde for this stack of eight supers. Very much less than I had been using. They were under gas for a month. The results were almost a hundred per cent perfect. This indicates that wet combs in a warm atmosphere makes the gas more active

and effective

The last tested sample was from my regular gas room in which I had boiled off eight gallons of formaldehyde for 120 supers, 1,200 combs, but the combs were not soaked in water first and were also subject to the winter temperatures. They were under gas for three months.

You will note that these samples were incubated ten days and that part were washed and part were unwashed after incubation. The washed scales showed the poorest results which would indicate that the treatment has an inhibitory effect, that is, combs may appear sterile at first but later on develop disease. My experience bears this out, for some colonies on treated combs showed no disease at all last year, but this spring some of the same colonies are showing up

Gov. Report on Above Samples.

"Your four samples of gas treated comb have been tested for sterility. Cultures were prepared with unwashed scales washed with water to remove the paraformaldehyde. At times sufficient paraformaldehyde is deposited in treated combs to prevent the growth of Bacillus larvae from scales in culture giving the impression that sterilization is complete when it is really incomplete. When scales are washed, therefore, the results are more accurate

The following cultural results were obtained after incubation of 36°C for 10 days:

Sample No. 16010-Your No. 1.: Open cells-no growth. (5 washed

and 5 unwashed scales).

Sealed cells-no growth, (3 unwashed scales); very slight growth, (2 unwashed scales); no growth (5 washed scales).

Sample No. 16011-Your No. 2: Open cells-no growth. (5 unwashed and 5 washed scales.)

Sealed cells-no growth. (5 unwashed and 5 washed scales.)

Sample No. 16012-Your No. 3: Open cells-no growth. (5 unwashed and 5 washed scales.)

Sealed cells-no growth. washed and 5 washed scales.)

The above samples were from combs treated with one quart of formaldehyde to eight supers or 80 frames. The combs were soaked and then gassed 30 days in a warm base-

Sample No. 16014-Your No. 4:

Open cells—no growth. (5 un-washed scales.) Slight growth. (5 washed scales.)

Sealed cells-no growth. (4 unwashed scales.) Slight growth. (1 unwashed scale.) Slight to fair growth. (10 washed scales.)

The above combs were treated with eight gallons of formaldehyde to 120 supers. Combs were not soaked first but were gassed three months in winter temperature.

Mountain States Audit Shows Growth

On February 27 the Auditing Committee of the Mountain States Honey Producers' Association completed an audit of the Association books and issued to the members a complete report, including several recommerdations, and the following summary:

"We find that the growth of the Association is encouraging. The records show the following information of interest to members:

	Increase	With-	
The year	in members	drawals	
1927-1928	135	6	
1928-1929	365	21	
1929-1930	542		

"The increase in colonies of bees has been as follows:

June, 1927	22,000
July, 1927	26,000
August, 1927	36,500
September, 1927	44,000
January, 1928	55,000
September, 1929	81,967
January, 1930	94,896

(Note: These figures do not include the bees belonging to members of the Western Washington Bee-keepers' Association, which is affiii ated with the Mountain States Association.)

"The structure of the Association has been very largely set up and the costs of organization have largely been paid. The Association as a business enterprise now has been launched and the cost of maintaining the Association will be largely confined in the future to the actual cost of operation. The cost per pound of operation depends very largely on the total number of pounds handled by the Association. We recommend that the members exert every influence to bring in producers not now members of the Association so that their cooperation can be added to the pool to increase the tonnage and lessen the expense of operation per pound and thus increase the return to members.'

Signed: Auditing Committee. Charles Brittain, Chairman. Frank Beach. Jay Fitzgerald. N. N. D.

Honey Business Valued at \$390,000 in Arizona

It is not generally known that Arizona produces an appreciable amount of honey. There are approximately 75,000 colonies of bees in the state, representing an investment of \$750,-000, with a yearly production of 4,875,000 pounds of honey, valued at \$390,000.

The production is from mesquite. catsclaw, alfalfa, and cotton.
Thomas V. Harwell, Arizona.



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Feeding in Spring

It is now the custom to advise the producers to give the colonies what is called a food chamber, an upper story more or less filled with honey, at the end of winter. This is good. But, nevertheless, we must watch our bees even after fruit bloom, for they breed heavily. In fact they must breed heavily if they are to be ready for the clover crop, which usually begins in June. We have seen colonies short of stores three days before the crop began, but short to such an extent that a couple of days of rainy weather caused them to starve.

We still remember the astonishment and indignation of a beginner who had asked us to advise him in the purchase of three colonies of bees, when we told him, two weeks after he had taken possession of them, that he must feed them. "Feed them! I bought bees to feed me with honey, and if I had thought I would have to feed them in the middle of the spring season, I should not have had anything to do with them." He looked defiant and indignant and probably thought we had plotted with the vender of those bees to cheat him, for he could not understand why he should have to feed them when the clover was beginning to bloom.

We often, very often, lose a crop, or a good part of a crop, by neglecting to look after our colonies when they are nearing the height of the season and need all the attention possible to enable them to keep on breeding uninterruptedly at the time when the brood produced will furnish the active crowd of harvesters.

Bad Publicity

A beekeeper who sells his honey from house to house in a mid-western city writes us about discussing bee disease in the newspapers. He states that a recent news story about bee diseases in the local newspaper cut his sales down fifty per cent and that some customers never will buy honey again because of the bad impression they received.

The American Bee Journal has warned against this danger on former occasions. There is no estimating the damage to the honey markets which has resulted from so much publicity about bee diseases in the newspapers. The public does not understand that honey is in no way affected for human food by the presence of disease in the hive. The quickest possible way to destroy the market for any food product is to connect it with a discussion of some disease. Honey has suffered so much damage from that cause that it will take years to restore confidence in some cases.

Cooperative Advertising

All producers of natural foods are benefiting by the recent tendency in advertising to mention other things with which a product may be used. This kind of advertising certainly is good business for the advertiser and it is of great assistance also to the products incidentally mentioned.

In the April issue of Ladies' Home Journal is a two page spread in color, of bakery goods which your own baker makes. One must look close to decide that the ad is paid for by Standard Brands for Fleischmann's yeast. The manufacturers of yeast thus hope to profit by the building of business and good will for the baker. Beside the baker several other producers profit also. One of the items mentioned is "Honey Coffee Cake" spread with honey and ground almonds. The reader whose appetite is thus whetted comes to the baker to ask for honey coffee cake and the baker thus profits. To provide this confection he must buy honey and almonds, so the honey producer and the nut grower also profit. This same ad thus creates a market for raisins, apples and cheese as well as nuts and honey, in the effort to improve the demand for the baker's goods and thus indirectly for yeast. This single advertisement cost several thousand dollars, the benefits of which are spread among many different people.

The Kellogg Company of Battle Creek were among the pioneers in this kind of advertising. Recent issues several magazines have such advertisements which suggest combinations of Kellogg cereals with various kin of fruits as well as honey. This advertising appearing the both newpapers and magazines runs into a total many millions of circulation.

Kellogg has also recently put out some expensive window display cards of similar nature.

Tariff Results

There has been much talk about a high tariff and Congress has been trying for months to pass a new tariff bill. It looks now like agriculture will find itself worse off than before. As a result of all the agitation other countries are turning to the same tactics. It is a poor rule that wont work both ways we should remember. Germany has passed a tariff law which will make it difficult for American beekeepers to sell honey in their market. Germany has been buying millions of pounds of American honey. Canada has placed a tariff on American comb foundation and thus cut off that outlet for American beeswax. Since all lines of agriculture are producing a surplus we must sell in a world market and a high tariff does little good at home while causing similar limitation of foreign markets in retaliation.

The Corn Sugar Bills

Late news from Washington conveys the information that the Preservers' bill has been revised and re-written and reported out to the House of Representatives in a form satisfactory to everybody. In its final draft, it is our understanding that it carries the provision that all ingredients must be declared on the label. Since the kind of sugar must be shown, this satisfies the corn sugar people as well as the beekeepers. The fruit interests should also be satisfied since the bill will set up a standard for jams, jellies and preserves.

If the bill should pass in its revised form it is believed

If the bill should pass in its revised form it is believed that no harm will be offered to any industry. Much interest has been manifested not only by the fruit growers and beekeepers but by several officials charged with the enforcement of the pure food laws of the various states.

Dr. E. F. Phillips, E. R. Root and Frank C. Pellett went to Washington to represent the bee men at the hearing. It is hoped that this action may settle the controversy concerning corn sugar which has agitated the beekeepers for several years past. To require the kind of sugar used to be shown on the label of any food product is entirely fair to the manufacturer and to the

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housewife who buys the product. It appears to be a happy solution of a vexed question.

Mr. W. G. Campbell, of the United States Department of Agriculture, offered the suggestion which resulted in finding a solution to which all could agree.

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The Bureau of Standards at Washington has recently announced a new method of producing sugar called xylose according to newspaper reports. This sugar can be manufactured in large quantities from straw or cottonseed hull bran at an estimated cost of about five cents per pound. It is estimated that more than a million tons of this sugar can be produced annually if a market can be created for it. The appearance of every new sweet at a low price offers new competition for honey. However, it is too soon to tell just what place this product will fill or what its food value may be. The most interesting thing in connection with the new discovery lies in the fact that it can be made from products which have been largely wasted, thus providing a new source of wealth.

A Correction

A serious error appeared in the article by Dr. L. R. Watson in the March issue of this Journal. In his description of the technique of determining the presence of carnauba in beeswax a decimal point was omitted. With reference to the amount used. Instead of 85 milligrams it should have read 8.5 milligrams.

Research With Honey

Some much needed research work to determine the sculiar qualities of honey is under way in the United ates Department of Agriculture. It is under direction W. Skinner, acting chief of Chemical and Technological Research ological Research.

In the division of food research an investigation is being made of the acids to be found in honey, both free and combined as salts. The volatile acids have been

and combined as salts. The volatile acids have been found to be mainly formic and acetic acids in about equal but very small quantity. Fifteen samples representing different sources have been under investigation.

In the carbohydrate division, Mr. R. E. Lothrop has been working since September with honey problems. His first work had to do with the diastase content of honey, in cooperation with the Bee Culture Laboratory. This work seemed urgent because of the situation in Germany, where importers were concerned about this particular point. About 250 different samples of honey were collected for examination as to diastase. were collected for examination as to diastase.

An extended study is under way of the use of honey in

the manufacture of candy. It is believed that here is a very large potential outlet. Honey differs greatly in ability to withstand heat and honey from some sources is much better for candy making than that from others. It is hoped to determine means by which honey suitable for candy can easily be recognized. After the characterfor candy can easily be recognized. After the characteristics of honey of suitable quality have been determined, an effort will be made to locate a dependable supply of domestic honey for the candy trade. It is believed that this work alone will be of great importance to the honey producer. We look forward with much interest to the progress of these investigations.

Bees in the Orchard

The big opportunity in the live bee business just now is in the sale of bees for orchard pollination. Many fruit growers want a large number of bees for a short time when the trees are in bloom. Those who are so situated that they are unable to rent bees for this purpose must depend upon their own. Many of these men know little about the care of bees and do not wish to bother with them more than necessary.

There is urgent need for a "foolproof" package which will enable the fruit grower to buy the bees and set them down in his orchard with no attention on his part. When the bloom is over he can dispose of the... in any way which opportunity offers.

which opportunity offers.

The writer has seen so-called orchard packages received from several southern shippers and none of these

packages seem to meet the present need. It must be remembered that many such buyers know nothing about bees and greatly fear them. For such persons the package must serve as a hive until the end of the blooming season when they can be removed from the orchard. The packages commonly sold for this purpose are designed for safety in shipping, rather than for the purpose of a temporary hive when they have reached the orchard. With the open screen over the sides the bees return from a flight and gather on the screen, unable to find their way back to the cluster.

What is needed is a package which is light, inexpensive, easy to open and which at the same time will furnish sufficient protection for the bees to enable them to establish colony conditions. The shippers who can meet this need should find a good business with the fruit

Time to Transfer Bees

Some of our beekeepers consider the job of transferring bees from box-hives or "gums" to movable frames a difficult and dirty job. Yet, when it is done at the proper time, with care and avoidance of robbing, when the combs that are transferred are nice, straight worker combs, mostly filled with brood, if the work is done during fruit bloom, while the weather is favorable, not during fruit bloom, while the weather is favorable, not too cool nor too warm, while there is a little honey in the fields, enough to avoid robbing, the advantages of the transfer are so overwhelming that the progressive beekeeper becomes enthusiastic. At least this was our feeling, in the days of long ago, when three-fourths of all the bees in the country were in box hives or in sawed-off logs brought out of the timber.

Some people prefer the less thorough method of simply putting a movable frame hive, filled with foundation, under the box hive and forcing the queen to go down into this hive. A queen-excluding partition is used and in 21 days, the brood having all hatched out of the queenless part, this box is removed and the combs either transferred at leisure or rendered into wax.

Without doubt, this method is much easier, but the results achieved are not so prompt and the old comb results achieved are not so prompt and the old comb is generally wasted. Many people imagine that combs that have produced bees for two or three seasons are unfit for breeding, but our experience has been that colonies whose brood combs are twenty years old may still be in fine condition for producing bees. We discard combs for old age only after they have been much used and are very dark.

Do not forget that our bees must be on movable combs, for it is only thus that we can control our apiaries successfully. Only a few old fogies remain who consider that bees may be kept profitably in box hives.

Corn Sugar Still a Live Issue— Last Minute News

Just as we go to press comes a phone call from our Mr. L. C. Dadant, from Washington, D. C., to the effect that the corn sugar people are still not ready to abandon their plans.

The latest move is the preparation of a petition and brief addressed to the Hon. A. M. Hyde, Secretary of

The appeal is to the secretary to make a ruling on the evidence submitted, for a conclusion that corn sugar (refined) may be used the same as other sugars. The petition was issued under date of March 31, 1930.

Just when we had hoped that the new preserves law, which allowed the inclusion of all sugars, if so labeled, was about to go into effect, the corn sugar people come forward, evidently not satisfied to let each sugar stand on its merits.

We must again gird our loins. While everyone has confidence in the secretary of agriculture, we must not allow all the pressure on him to come from the side of those who do not have the best interests of the honey producer, and the pure food law. A heart.



This is the second article on this interesting subject which has aroused so many comments. The first article, published in our February number, led to quite a number of trials of this new experiment. The present article gives some advice to those who are planning to use hives of this kind to see what they will do.

New Observations on Beekeeping in Illuminated Hives

By A. N. Briuchanenko.

M Y previous article dealt with experiments and observations on worker bees in illuminated hives in 1927 and 1928. In 1929, an unfavorable season, the results are described here

An apiary of twenty colonies at Moscow was chosen and five medium colonies put in illuminated hives. These have brood nests in two stores with eleven frames in each They were compared with five colonies in ordinary hives of Dadant-Bladt construction.

The lighted hives yielded 80 pounds of surplus honey, the dark ones 7½ pounds. The difference was nearly ten fold in favor of the hives with direct sunlight. Besides surplus honey, the lighted colonies built scores of new colonies. One colony during the season built twenty-five combs. At the height of brood rearing, the brood in every bright hive occupied almost twenty combs 20"x9". The bees of this apiary were black.

In another apiary, situated near Moscow, the hives were of the common American construction with the exception of double glass panels in the front. Each story contained eleven frames 400x250 cm. In some of the bright hives the brood was not in two stories but in three, brood of different ages occupying twenty-five combs. All the queens were Caucasians. Brood rearing was so intensive that every one feels inclined to call these hives bee factories.

Since the ventilation of the hives was not sufficient and their glass panels were turned to the south, some of them cast three swarms, even though the glass panel was shaded on sunny days from 11 till 4 o'clock in the afternoon.

The bright colonies yielded 80 pounds of surplus honey, an average obtained by dividing the surplus of all, including the yield of their swarms, by the number of colonies, spring count. In addition, each bright colony built twenty to thirty combs and put up forty pounds of winter stores per colony. Neighboring apiaries, in dark hives, with black bees, yielded from one-third to one-sixth as much.

During the season, experiments with bright hives were made not only in Moscow, but in other parts of U. S. S. R. in middle Asia and the districts of Leningrad, Saratow, Tver and N. Dvinsk. The results were much alike and similar to those of the past two years.

We cannot restrict ourselves, therefore, to the modest statement that the entrance of sunlight into the hive simply has no bad effect on the bees or on the crop because bees in such hives, as we have already seen, produce larger crops and come to greater strength more intensively. I have received one letter from a southern beekeeper informing me that rearing queens in bright hives is much better than in common ones.

We can readily expect bright hives to prove useful in northern apiaries, but they also show up well in the southern ones, so that one of the largest apiarists in Tunis (N. Africa) decided after preliminary experiments, to put in at least twenty bright hives for honey production, and many nuclei of the same construction for queen rearing.

Experiments and observations with bees in bright hives come from the experiences of both commercial and amateur beekeepers. They were started in this country in 1926 through the medium of our bee journals. Considerable correspondence and visiting with beekeeper experimenters has been undertaken, the author extending guidance and coordinating the work.

From my knowledge of experiments with bright hives during 1928 and 1929 I may summarize as follows:

- 1. Bright hives quicken broad rearing, increase colony strength, and are indispensable for honey production in northern regions.
- 2. Bright hives are of great importance in the production of package bees because they serve as bee factories.
- 3. Bees in bright hives are gentle, not frightened by the light when the hives are opened. It is easy to observe the bee in them, so it is easier to plan work in an apiary.
- 4. It is sufficient to put a double glass panel on the front of the brood nest only.
- 5. It is probably best that the glass panels be turned east or southeast. If they are turned south, then they must be shaded, which is less convenient and more risky in case of delay.
- 6. Supers and room for storing honey must be dark.
- 7. In late fall the glass should be covered by a shutter for winter, perhaps until March. Possibly it would be better to uncover the glass a month before spring flight. We do not know.

8. The value of having bright bee cellars is doubtful because winter brood rearing should not begin earlier than thirty days before the spring flight of bees.

9. Upward ventilation in bright hives is very necessary, the upper entrance probably being better than a lower one. Also there should be an opening in front lower than the upper entrance for ventilation during summer heat.

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10. Bright hives can be made of every type and construction, but they should have a brood nest of two to three stories, with a comb area of not less than 25,000 square cm. measuring one side only

Biological Observations on Bees in Bright Hives

Many beekeepers ask what the effect of the light is which penetrates hives with glass panels. Very little can be said about it. The direct sun's rays penetrating the double glass raises the temperature in the hive and helps the bees to sustain it at a high level. This is probably the secret of the beneficial effect. Since a temperature too high is detrimental to bees, it is also necessary to use plenty of ventilation.

Because direct sunlight is useful, the bees not only do not cover the inner glass panel with propolis, but keep it clean as a good housewife keeps the windows of her dwelling.

Many experienced beekeepers often ask how the glass can be useful when they have seen bees many times cover the glass of an observation hive with propolis. Bees cover the glass only when it is single They never smear a double glass panel if both glasses are thoroughly cemented in. This is necessary to keep the air motionless between the panels and to maintain warmth in the hive. Without the outer glass, the bees will immediately smear the inside one in cool weather.

So the smearing of a single glass in an observatory hive is not due to light but to cold. The cooling of the single glass panel compels the bees to protect it in this way in order to make the hive warmer.

All observers and experimentors who have had anything to do with bright hives unanimously assert that bees are gentle domestic animals in such hives and that their anger disappears

At present, this can only be explained by supposition. Perhaps, the nature of the bee changes because of the sun's action. In experiments by American investigators with the action of ultra-violet light on bees, there are indications of such a possibility, although it must be remembered that common window glass does not pass ultra-violet light.

It may be that bees are more gentle in bright hives because the light does

not irritate them any more when they are open, since they are already accustomed to it.

This is not all that is necessary to explain, however, because the bees in bright hives will allow you to tap at their hives when colonies in dark hives in the same row will not permit this. Some skeptics think that bees are more gentle in bright hives because they degenerate. Such a conjecture is not right.

In fact, colonies in bright hives become stronger more quickly and yield more than normally; also the bees in bright hives repel their enemies more energetically than other colonies. Robbers who get into bright hives and try to get out, do not go to the entrance but to the lighted glass panels, struggling against it, not being able to get out. Then they lose their courage and are energetically punished by the inmates of the hive.

It must be remembered that, so far, this is only an experiment and we do not have in this country apiaries housed only in bright hives. There are quite a number of questions to clear up with interesting experiments and practical beekeeping.

—Moscow, U. S. S. R.

Wurth's Hobby Is Honey Samples

Daniel Wurth, veteran beekeeper of Wapato, Washington, is collecting samples of various honeys from all over the United States. According to Mr. Wurth, who spent the winter in the milder climate of the Puget Sound region, beekeepers from all parts of the country visit him at his home in Wapato. Many of them boast of the fine quality of honey from certain flower sources, and by having samples of these honeys at hand Mr. Wurth is able to bring them out for comparison with his own product. Although well beyond the three score and ten year age limit, Mr. Wurth is quite up to the minute in his ideas. His average yearly production of honey runs from one to two carloads.

N. N. D.

Colorado Has Honey Exhibits at Beekeepers' Meeting



Through the kindness of Frank Rauchfuss, manager of the Colorado Honey Producers' Association, we are able to show the picture here of a small honey exhibit at the annual meeting of members in Denver during the fore part of March, 1929.

Note particularly the large size, standard style comb honey section, which contained 240 individual sections of comb honey, each one of them about as near perfect as honeybees will work in sections of the size.

In commenting on this exhibit, Mr. Rauchfuss says: "The use of these individual sections requires a good comb honey producer to put out something that is at all worth while."

It is our belief that meetings will be more largely attended if a little showmanship is used in preparing the program. Beekeepers do not like to come to meetings any longer and just sit down and listen to talks. They want to be entertained, to see things, to do things, as well as to be instructed.

A Marvelous Orchid from Madagascar With a Nectary a Foot Long

A Description of the Flower in the Cover Picture

By John H. Lovell

IF the reader could venture into the semi-tropical forests of the great island of Madagascar, which as yet have only partially been explored, he would presently discover many remarkable and useful plants. Here amidst the dense and varied vegetation is a tree which is a mass of scarlet flowers, while a little distance away is another covered with yellow blossoms; there are palms, bamboos, the baobab, tamarind, tree ferns, and, especially noteworthy, the traveler's tree, with its graceful crown of plantain-like leaves growing in fan shape at the top of a lofty trunk. There are also two hundred or more filmy ferns and many spiny and prickly plants, and numerous grasses and reeds used in the native arts, besides many strange orchids-in ali more than two thousand flowering plants have been described from Madagascar.

Some years ago an explorer discovered in one of the low, hot districts of Madagascar a marvelous orchid, which under cultivation has excited the admiration of all orchid growers both in Europe and America. It was ivory-white, six-rayed, seven inches broad, with a spur or nectary nearly a foot in length, or longer than that of any other known dower in the world. It was given the name of Angraecum sesquipedale, or the foot-and-a-half orchid, sesquipedale being the Latin adjective with this meaning. This long nectary is greencolored, and so elastic and rig.d that it always maintains itself in a straight line, extending backward and downward. Usually it is filled with nectar for one or two inches at its lower end. The Madagascar orchid is an extreme example of flowers which have their nectar so deeply concealed that it can never be gathered by honeybees.

When this noble orchid was brought to England, Charles Darwin declared that a moth would be found also n Madagascar with a tongue as long as the spur of this plant; but British entomologists, or specialists in the study of insects, scoffed at such ar idea. English moths have tongues only as long as their bodies, and it was incredible, absurd, impossible to imagine the existence of a moth with a tongue or proboscis twelve inches long.

But later such a moth was actually found, and its very long tongue does not constantly endanger its life, as (Continued on third column.)



Editor of "Bees and Honey" Goes to Los Angeles

On February 21, George W. York, editor of "Bees and Honey" left his home in Seattle for Los Angeles. Mr. York was at one time editor of the American Bee Journal but since January, 1925, has resided in Seattle publishing "Bees and Honey" and managing the business of the Superior Honey and Bee Supply Company and later that of the A. L. Boyden Company of Seattle. In Los Angeles Mr. York will continue to publish "Bees and Honey" and be connected with the A. L. Boyden Company, manufacturers of bee supplies.

Mr. York's position as manager of the Boyden Company in Seattle has been taken by Mr. C. E. Hamann, a graduate of Montana University formerly identified with the produce and banking business of California.

Mr. York has been in touch with all matters in beekeeping in the Northwest during the past five years, attending many of the conventions in Oregon and Washington, and acting as judge at the state fairs in British Columbia. His move to Calıfornia comes as a surprise to his friends in the Pacific Northwest.

Looking Back With Mr. York

Mr. York's future address will be Alhambra, a suburb of Los Angele and "Bees and Honey" will be issued from that place.

About thirty years ago, when M York was still a young man and ear tor of the American Bee Journal, the writer was an over-enthusiasti-novice in the art of bee culture. A acquaintance formed at that time with him led to a larger circle of friendship with some of the foremos beekeepers of the world including Dr. C. C. Miller, C. P. Dadant, W. Z. Hutchinson, N. E. France, the Roots and many others.

At this time also an acquaintance was formed with the American Bear Journal. No wrong comparison is intended when it is said that the thought of Mr. York brings up a vision of this long line of celebrities, and recreates a host of pleasant meniories. There is undoubtedly a place for a live bee paper on the Pacific Coast, and Mr. York will find a nice into which to fit himself and his publication.

R. B. McCain, California.

the reader might suppose, for it 18 carried beneath its head in a coil of some twenty-five windings. When it visits a flower of Angraecum, the tongue is uncoiled and inserted into the nectary as far as possible in order to drain out the last drop of nectar.

As this orchid is unique among flowers, let us very briefly notice how it is pollinated by the moth. The flower has only one stamen, but the two lobes of the anther are so far apart that they appear entirely distinct. The pollen grains are bound up into little packets called pollinia, each bearing a short stalk tipped with a glutinous disc. When the long tongue of the moth is thrust into the nectary, these sticky discs adhere to its base and the pollen masses are dragged from their sockets and carried away to another flower. If the moth then inserts its tongue with the two pollinia adhering to its base in the nectary of this second flower, toe pollen masses will rest on and cling to the glutinous shelf-like stigma and be torn away from the insect.

If these great moths were to become extinct in Madagascar, then beyond doubt the orchid Angraecum would also become extinct, since it cannot fertilize itself. In the spur of this flower there is always an inch or two of nectar, where it is beyond the reach of all other insects, which affords the moth an unfailing supply of food. Thus should the orchid perish, the moth in its turn might disappear as the result of starvation.

(Continued on page 245.)

The Tariff on Beeswax

By H. F. Wilson.

At the time when this discussion was written, there was before Congress an amendment to the tariff schedule which would create a 12% tariff on beeswax.

Just where and how this movement was started, I do not yet know. But I have been informed that the Minnesota State Beekcepers' Association, at its last meeting, passed a resolution asking for such a tariff. According to the Congressional Record, representatives from Michigan, Iowa, Minnesota, North Dakota and Idaho have been working in favor of such a tariff, while some other states, including New York and Wisconsin, were working in opposition to it.

Now, I wish to state frankly that I do not know whether we should, or should not, have a tariff on beeswax, but with my present knowledge of the situation, I am afraid that such a tariff is likely to be more harmful

than beneficial.

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The only reason that we should have a tariff is to raise the price which our beekeepers might secure from the beeswax that they accumulate as a sideline to beekeeping. The largest amount of wax that any individual might secure in one season from his cappings would amount to anywhere from 500 to 2,000 pounds, with the average amount probably 1,000 pounds. If the price of beeswax were increased 10c a pound, it would mean that every individual beekeeper might secure from \$50.00 to \$200.00 extra. But what about the large beekeeper who is buying comb foundation, and the smaller beekeeper who is buying both brood and surplus foundation? Should they not be given some consideration?

If a tariff is placed on beeswax, it will increase the cost of como honey production, and the only net result that I can see will be to drive a lot of small beekeepers out of business and perhaps cause the comb honey producers to change to extracted honey production. Under present conditions, our market is already badly demoralized, and the passing of this tariff would increase the cost of comb foundation, and this would tend to create even a more serious disturbance.

I don't undertsand why this matter has not been discussed in the bee journals, nor do I understand why it has not been presented to the beckeepers in general throughout the United States, so that a survey could be made to find out just what such a tariff would do to the beekec, ing industry.

Should the smaller beekeepers o the United States arrive at a position where they might feel that they are unjustly treated, there is no ques-

tion in my mind but what they would be inclined to work against the great cooperative marketing movement which is now being developed. And, with 500,000 or 600,000 smaller beekeepers opposed to the commercial interests, it is more than likely that the members in Congress would feel compelled to abolish such a tariff.

In the meantime, the beekeepers of America have been extremely successful in keeping Congress on their side. It is my personal feeling that, with the big problems we have before us now, it is unwise to inject a new problem of unknown importance, which may split our power in Congress or in any way interfere with the development of the important projects which we now have at hand. Never was there a time in the history of American beekeeping when we had so many interests working in unison-The American Honey Institute, The American Honey Producers' League, The Mountain States Cooperative Association, and the various state associations are working hand in hand to improve our marketing conditions, and those who have had experience with the various beekeeping elements of the United States know how easy it is to create a feeling of dissatisfaction and general disorder among the various beekeeping sections.

As I have said before, I do not know whether or not we should have a tariff on beeswax, but my contention is that the matter should be thoroughly aired through the bea journals and other ways, and that a very careful survey and investigation should be made to determine just what effect such a tariff would have on the whole beekeeping industry.

I should like to see every beekeeper in America make just as much as he possibly can from his bees, but no single group can succeed for a long period without the cooperation of a majority of the beekeepers.

So far as I know, this matter was not presented at the meeting of the American Honey Producers' League, the proper place for starting a national consideration of such an ef-

When the matter of tariff was presented to Congress, it was set at Since that time, it has been reduced to 12%, and is now before the Tariff Schedule Committee in the House of Representatives, on the latter basis. It may be that by the time this article is printed the tariff schedule will have been prosented.

The beeswax situation is one that needs discussion, and a little overhauling will do no harm. It is entirely possible that a tariff is desirable, but would it not be better to

have everybody thoroughly understand the situation before we embark on any program of this kind?

(There is a tendency to lower prices on beeswax, but this is prooably due to the openly given urge, by some bee interests, to mix vegetable wax with beeswax, under the plea that it will improve the quality of the beeswax. A few people have mixed Carnauba wax with beeswax, up to ten per cent. The effect has been, first to increase the amount of beeswax in the country, and secondly, to cause a distrust of the beeswax sold by beekeepers, among the people who use beeswax for different purposes outside of beekeeping.

In spite of this unpleasant situation, we do not think it is advisable to put a duty on beeswax. This question of duty, on any articles whatever, is a game at which more than one country can play. America has car ried the question of duties too far and we have caused other countries to retaliate by putting duties upon articles that we produce in excess of need. Such is the case with noney. We export very much more of at than we import and duties on noney are likely to hurt us. We must not forget that we are part of the human race and that we cannot separate ourselves from it by laws.-Editor.)

A Glance Through the South

By Jes Dalton.

March was the worst month for weather in many years over a large portion of the South. This, coupled with the fact that we had severe winter weather, has had a bad effect on beekeeping.

Letters and reports from the various states sound so much alike that a report from one will fit them

Louisiana-Bees came through the winter in good shape as well as the plants, but there was not a single good flight day in the month. Willows and tupelos came and went with the bees never getting to work except a few hours once in a while.

A letter from Dr. Oertel of the Southern States Laboratory reports finding bees near starvation in the Another, Deputy Inspector George Lotz, reports the same conditions, with package shippers in general somewhat discouraged.

Down in the southern part, we have completely missed the first early flow. Farther north the warm weather of April may catch the plants and bees right and they may get the flow that was missed in March. The hive on a scale through March showed a steady decline all through the month, but began to show a gain in April and has shown a slow but steady gain up to date (April 10).

(Continued on page 250.)

Starting Queen-cells Without Dequeening

By Robert B. McCain

QUEENS are sometimes needed out of the swarming season, when it is not desirable to make colonies queenless in order to have the queen-cells started. This need often occurs early in the year, when to make colonies queenless in order to obtain cells means the loss of part or all of the honey crop from every colony thus treated. If it is possible to secure early queens without interfering in any way with the progress of the colonies producing them, a method of doing this may be worth describing.



1. Equipment. Two story hive, upper with one comb short. Queen excluder, feeder, two moving screens, cell cups, burlap sack.

The method described here has been used for many years with uniform success. It should be understood at the outset that no claim is made for the superiority of this method over that of making a colony queenless for several days in order to force the bees to start queen-cells, as far as number of cells is concerned. The claim is made, however, that this method requires less time to produce cells and does not interfere with the growth and development of the colony. The cell-building colonies will produce just as much honey as they would if they were not used for that purpose.

The first and most important requisite for producing good queens is a strong colony of bees. This is true no matter what method of queen breeding is used. For this method the colony should fill two stories of an eight- or a ten-frame hive with worker bees of all ages. In order

to obtain this populous condition of the colony early in the season, it will probably be necessary to resort to stimulative feeding. The feed should be either honey, or syrup made of equal parts of white granulated sugar and water; and it should be given in small quantities regularly, in imitation of a light honeyflow.

Bearing in mind that it requires the better part of a month for a worker bee to grow from an egg, the stimulative feeding should be started early enough to permit the colony to reach its greatest strength at the beginning of the natural honeyflow. We cannot "rush" the bees, but we can imitate a honeyflow, and we can conserve the heat of the hive; and if we do those things properly the bees



 Upper story shifted to moving screen as side, second screen on top and sack to prevent draft. This upper story is now the "swarm box," free from brood, but well supplied with pollen and honey and well filled with bees.

will take care of the growth in their own good time. In order to conserve the heat, the second story should not be added until the first story is overcrowded. The brood nest should be kept together in the lower story, under a queen excluder, and, if more room is needed for the queen to lav her eggs honey and pollen combs should be lifted to the upper story, and empty combs placed at the sides not in the middle, of the brood nest. When the colony fills two stories, and not until then, we are ready to take the first step to secure queen-ceils without molesting or disturbing the queen in any way. The brood nest should be examined, however, every seven or eight days for natural swarming cells. A method of swarm control will be described later.

Picture No. 1 shows the two-story hive with entrance feeder in place and the interior of the upper story with a full complement of frames except one. Space for one frame near one side is left vacant. The combs of the upper story should be entirely free from brood, but they should be well supplied with honey and pollen. One or more of the combs of the upper story should be filled with water. Other equipment needed are two moving screens, a few artificial cell cups and a burlap sack.

Picture No. 2 shows the upper story of the hive snifted to the moving screen at the side, with the second screen on top, and the burlap sack spread over the top to prevent too strong an upward draft of wind. We will now call this upper story the "swarm box." If the colony was as strong as it should be, this swarm



3. After twenty-four hours, the first bar of grafted cells is put in the "swarm box."

box will contain the equivalent of a good size natural swarm of bees, and there will be sufficient food and water and ventilation to make them comfortable for as long as it is necessary to keep them confined. If the swarm box is to be left outdoors, a hive cover should be put on over the sack, but if the weather should be extremely hot, the swarm box should be kept in the shade while the bees are confined in it.

Picture No. 3 represents the hive and swarm box twenty-four hours after the first shift was made. At this time the first bar of grafted celis is placed in the vacant space left for that purpose. In order to make the moves described, a smoker should be used to prevent the bees from escaping, but only enough to keep them under control.

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Twenty-four hours after placing the grafted cells in the swarm box. a careful examination of the grafted cups should be made. Out of the twelve or fifteen cups given there should be at least five or six accepted, if the grafting was properly done, but if only one or two cells are accepted, these may be used for the royal jelly they contain in grafting another batch of fifteen cups, which are placed in the swarm box and left for another twenty-four hours. Confinement for this length of time will do no harm, provided the directions given above are carefully followed. When a fair number of cells are accepted, the swarm box is returned to its original place as shown in Picture No. 4.

Five days after the first cell bar is grafted, a second batch of cells may be given. At this time the first

After a fair number of cells are accepted, the "swarm box" is returned to its original place in the colony.

bar of finished cells is placed in the lower part of the frame and the second bar is put in above, as shown in Picture No. 5. The hive is now closed and left undisturbed for another five days.

Ten days after the first batch of cells were grafted, the ripe cells should be placed in nursery cages, Picture No. 6. The frame containing these caged cells should be put in the middle of the brood nest of a strong colony of bees. Of course they can be left where they were

built if only one batch of cells is to be taken from the colony; but, in ar.y case, they will have to be put into nursery cages, unless the ripe cells are to be distributed in the apiary for requeening in that manner.

When a colony of bees is as strong in numbers as it ought to be in order to produce queens of the best quality, there is always the probability of producing natural swarming. The swarming impulse will interfere with the operation of the program described above unless some method of swarm control is used. The simplest and easiest method of swarm control to be used with the plan of queen breeding described above is as follows:

Examine the brood nest every week, regularly, and when embryo cells are found, kill them. One day after the first batch of cells is re turned to the parent hive, shift all brood, except one frame of unsealed



Five days after first cell bar was given, a second one may be placed in same frame, first one being moved to bottom.

brood, to the upper story and fill the lower story with empty combs or full sheets of foundation. The queen, of course, must be found and left in the lower story, where she will have ample room to lay. The brood should be shifted in this manner every ten days, regularly. The combs must be examined carefully every seven days in order to prevent the development of natural cells.

The method described above may be used for only one batch of cells or it may be used continuously throughout the season, as long as the weather will permit successful queeneraring. When the main honeyflow is on, supers may be added, and when the combs are filled, or sections, if comb honey is produced, the crop

may be harvested just the same as if no queens were being raised. There should be a card on the hive, or a leaf in a notebook, on which is written a definite schedule of work, somewhat as follows:

Queen-Rearing Colony No. 50 1930

April 20—Shifted swarm box to screen. (Plenty of honey, pollen and water.)

April 21—Grafted fifteen cell cups. (Larvæ from queen No. —.)

April 22—Returned swarm box to parent hive. (Seven cells accepted.)

April 23—Shifted brood up; queen down with one brood. (Object, swarm control.)



 Nursery cages of cells grafted ten days previously, being placed in center of brood nest of strong colony.

April 26—First graft down, second graft up in frame. (Look for queencells, combs.)

May 1-Caged ripe cells; second graft down, third graft up.

May 3-Shift brood for swarm control.

A careful study of the schedulc given above will show that the method of queen-rearing described in this article is not as complicated as it seems. The schedule should be made out and followed strictly. If the dates are properly made out in the schedule, all that is necessary, after the work is done, is to check with a pencil the date of the operation and note when the next work is to be done.

When bees are handled in the manner described in this article, queencells are built under the supersedure impulse. The shifting of the brood every ten days not only prevents swarming; it creates the impression among the bees that their queen is failing, since she cannot keep up with the hatching brood. For this reason, a young queen should be introduced every thirty days, if the colony is used for queen-rearing throughout the season.

If a large number of queens are to be raised, several of the strongest colonies in the apiary should be used for the purpose. In fact, the safest plan, even in a small apiary, is to prepare several colonies for this work and then use the best of them when the time comes for the grafting of the cells. With a good queen to breed from and careful work at every step, the beekeeper may have in his own yard as good queens as can be had from any source.

California.

Factors in Swarming

By A. H. Pering

THE article appearing in the American Bee Journal for May, 1929, page 229, entitled "Bee Milk, a Factor in Swarming," by Jay Smith, together with the note by the editor, is of considerable interest.

Mr. Smith says he has done considerable experimenting in an attempt to make bees swarm, wishing to create the best possible conditions for cell building at the earliest possible date. He, being a practical and successful queenbee breeder, wishes early spring cell building, and, realizing that the "early bird catches the worm," so do the early queens catch the early customer.

He relates having added what seems to me an abnormal quantity of bees to a colony received in packages from the South in order to secure a very strong colony, and the feeding of a thin syrup regularly to imitate a natural honeyflow-all this to bring about early queens. But without results. He attributes the failure of the colonies, to swarm or to begin cell building, to the lack of pollen in their hive and to the weather being such that the bees were unable to secure pollen from the field.

He states his conclusions, or perhaps it is his conviction, where he says, "Bees cannot secrete royal jelly without eating pollen, and without royal jelly there will be no brood rearing, cell building, or swarming."

Now I do not take exceptions to Jay's statement particularly, but I venture that had he made that colony queenless, something would have been doing right away—cell building begun and royal jelly for grafting secured immediately. But, of course, Mr. Smith wanted natural swarming if he could get it.

I just want to digress a little right here. The reader will notice I have been using the words "right away" and "immediately." Since coming south from Indiana to Florida, it is interesting to notice the expression used here of "right now." Southern people say they will "build a house right now," or "plant their garden right now," or "plow a field right now." "Bees will swarm right now."

I do not now remember of ever hearing a Floridian say "immediately" or "right away." It is always "right now" even though it is a hundred-mile railroad to be built or a twenty-five-story hotel to be erected—"the road will be built right now," and "the hotel will go up and be occupied right now."

So, Mr. Smith, I think "right now" that if that feed you gave in the form of thin syrup had been thick, ripened honey, so wax secretion had begun "right now" instead of the ripening or thickening process of the thin feed, you would have created another natural condition for swarming "right now" as well as royal jelly secretion, and secured your queencells "right now."

I think the wax secretion is the "sin twister" or "twin brother" to the "milk-giving" condition. I believe they go together in the preparation for swarming. The "milk" is used or left behind when they swarm, and the wax they carry with them, or the supply of food to produce the wax, when they issue from the hive. My suggestion to Mr. Smith is, sometime, when he feels so disposed and has the time, to try the plan of forcing wax secretion, whether they need the wax "right now" for either comb building, the sealing of honey, or capping brood, or have to use it for burr-combs. It makes no difference whether there be pollen either in hive or field. There appears to be more pollen in the solid frames of sealed honey left in the brood nest than most of us realize. Just hold any brood frame up to a strong light. Pollen will frequently show up under the cappings that was not expected there, and then, too, I believe pollen is frequently mixed with honey in brood combs that we do not notice, especially if we are not making any particular search for it.

Speaking from personal experience, I have had colonies to swarm "right now" after uncapping their honey in the brood chamber and then feeding thick, ripe honey. You see there was a demand created "right now" for wax to seal the uncapped

honey and to seal the cells in which the honey was stored.

I am not cock-sure about the bees being able to secrete wax at the same time royal jelly is being produced. Whether the worker bee can produce wax at the same time she "gives milk" I do not know, but I think "she be."

Bees are loathe to uncap their honey, except as they are in need of it or want to move it. I believe they uncap certain cells containing pollen at the bottom of the cell when in need of the pollen, hence those scattered empty cells found in the early spring in sealed honey in outside brood combs.

Years ago, when yet a mere lad on my father's farm, in Indiana, and when my finances did not permit the purchase of all the "bee fixins" I so much desired, I did without the use of comb foundation until the bees paid their own way. At this time I secured the the building of straight combs without the use of even the proverbial inch starter. I would select the straightest and most even combs and place empty frames between them. The straight combs served as a guide in the comb building as does the separator or fences in comb honey supers. In order to hurry the building of these new combs. I tried stimulating feed, with the result of a swarm "right now." I usually got what I wanted in the way of building the new combs, but I got what I did not want, too.

Some years later I tried feeding thick, ripe, strained honey taken from boxhives and bee trees, logs, gums, etc., in order to get the honey into chunk honey or honey that was freed from the pollen and the very strong flavor of the crushed strained honey. Swarms would issue unless I kept the colony queenless. The queenless bees would build dronecombs in every nook and corner, even beneath the bottom boards, and build mounds on the bottom boards, and burr-combs galore between top bars.

Another time I tried to get comb honey in sections by feeding; they swarmed. Then I tried selecting rather weak colonies or colonies below normal; same old "right now" result, unless kept queenless.

Since coming to Florida, I even tried introducing a young queen to very old bees by removing a normal colony from its stand and placing a hive with five drawn old empty brood combs, three full sheets foundation and two with inch starters. All worker bees were field bees. I fed thick honey liberally through a super containing empty drawn combs. They swarmed in exactly ten days. Combs full of honey and larvæ. Foundation drawn with brood in all stages from

which

eggs up to ready for brood to be
capped. The inch starters were drawn
out and a little comb built on, down
below the starter—very little, however. Considerable honey stored in
super. Very little honey sealed anywhere. Five queen-cells on the old
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I hived the swarm in disgust on five full sheets of foundation, gave them the two frames of starters they had deserted and one dummy, and left them to their own devices. The old bees soon died off to such an extent that I expected the remainder to be wiped out by robbing or the moth, so, as I thought the queen a good one, I united them with the weakest colony I could find. The old bees were too old for wax and "milk." The colony from which they came went on forward without further help or feeding and did well enough, all things considered.

So it seems to me that wax secretion and "bee milking" go together to produce swarming. Try it, Mr. Jay. Florida.

Cooperation and Propaganda to Give the Uses of Honey More Publicity

By Jes Dalton

A little thought on the part of beekeepers would work wonders along this line. The cooperative advertising done by the Kellogg Company of Battle Creek, Michigan, is a good example. They have scattered the word "Honey" and connected it with health and food more than any one agency in the United States. In addition, they have sent demonstrators to beekeepers' meetings far and wide to tell beekeepers how to cooperate.

To save my life I can't see why state and regional beekeeping organizations and beekeeping writers do no tmake more of an effort to cooperate. It would not cost a cent to have "Eat Kellogg's Cereals with This Honey" printed on labels for cans and jars, etc., and placed in beekeepers' advertisements.

Last spring, the principal of the St. Francisville High School showed an interest in bees and beekeeping. He was a married man with a family, but had never owned a beehive. I had bought some box-hives and he wanted to secure one of them. I transferred one of them for him onto moveable combs and placed the bees in a discarded hive and requeened the colony for him.

This fall the school sent a health exhibit to the South Louisiana Fair which took a small prize. From the fourth grade were pictures of two old people and between them a list of vegetables that they could eat. Very prominent was a jar of honey with a bright-colored label. This is

the first time in my life that I have ever seen honey listed as a health food in a school chart. There was also a model farm laid off along health lines with health foods being produced on it. For this the picture of the bee yard appearing in the October American Bee Journal, page 490, was used to demonstrate honey as a source of health food.

This not only attracted attention at the fair, but the attention of the whole school was called to honey and bees, and to honey as a food.

I might add that the whole cost of the box-hive colony to me was fifty cents. I fitted the colony up with discarded equipment, frames, tops, bottoms, etc., and in addition had many pleasant moments watching the professor and his family taking an interest in something I also was deeply interested in.

Just why in the world is it, I wonder, that leaders, editors, and organizers do not give us more of this kind of propaganda instead of rules and regulations, etc., that appear?

regulations, etc., that appear?
Why not use this kind of propaganda instead of continually telling the world that honey is full of dangerous disease, that there must be embargoes against honey and bees, hives burned, branded and disinfected, and carloads of honey kept out of states because of it?

Does anyone think that the particulars of disease are productive of appetite, even though it may not be dangerous to people? I wonder if anybody has cut open a Florida orange in the last few months without looking for the maggot of the fruit fly which has been so widely advertised? Are we foolish enough to think that reading about disease in bees, disinfecting, burning hives, embargos, etc., will not be similarly associated?

Honey in What Size Packages?

Dr. Mart R. Steffen, on page 22 of the January Journal, tells us some things we already know about honey, but condemns us for selling in anything larger than one-pound glass jars.

One-pound jars may be all right in cities, but in the country, where people do not go to town often, some want it in five- and ten-pound pails. One-pound jars also make honey more expensive. Some of the country people want it in sixty-pound cans for their own use. This is true even in the city of Chicago.

Some doctors are telling patients not to use sugar at all, but to use honey. In an address by Dr. Paul Sampson on "Sweets — Their Uses and Abuses," published in "Beecause," volume 8, 1929, reasons for this are given. In the same paper, "Finding Ways to Build a Honey Market," by C. D. Murphy, he says

in part: "Anyone who claims to know at the present time what kind of a package, or what priced package is best adapted to winning a broader market for honey, is probably flattering himself."

Some people claim that only clover or white honey should be offered for table use. As a matter of fact some customers do not like clover honey, but prefer heartsease honey and are more likely to buy when they can get that kind. Quite a number think that honey is honey only when it is in the comb.

W. C. Moon.

I Enjoyed The "Bee Fairies"

I like the "Bee Fairies" personally and I am no kid, if thirty-six years should make a person grow up. How kids like the story is more than I know as there are none around here; but I cut out the pages and mailed them to my sister who has three children and I have asked her to let you know what she thinks of them.

Variety is the spice of life. Even some silly stuff goes good once in a while. I do not mean the "Bee Fairies" is silly, such as Old Drone in Gleanings, but I enjoy Old Drone enormously. "Bee Fairies" is not only entertaining but also educational. By all means keep on with the story and make it good and long.

Another thing, I think it would make a good bedtime story over the radio and advertise honey unwitting ly. Here is a suggestion: Write the story on a page that will not take along some good item of the Bee Journal one might want if the story is cut out. Also when the story takes more than a page why not have the continued part on the outer margin of some other page so it will not be necessary to cut out an entire page in order to send the story to someone else?

Arthur E. Johnson, Washington.

Dr. Baxter to Illinois Health Department

Beekeepers of Illinois note with approval the appointment of Dr. A. C. Baxter, of Springfield, as assistant director of the State Department of Health. Dr. Baxter long has been a leading figure in the Illinois Beckeepers' Association, serving as President for a number of years. He is known throughout the state for his work with bees and in the interest of beekeepers.

Dr. Baxter was born and reared on a Morgan County farm. He served for three years as Health Commissioner of Springfield, and since has engaged in the practice of medicine in that city.

Three Hundred Colonies Coming from Cellar in Red River Valley



The picture shows a part of three hundred colonies just coming out of the cellar in the spring in the Oaks Apiary in Moorhead, Minnesota. They are being moved to outyards four and eight miles away along the Red River.

George Seastream, Minnesota.

Tackling a Transferring Job

By Hy. W. Sanders

PROBABLY those highly skilled professionals we read of, who can pick up a few hundred colonies in an evening and open for business next morning miles away, all ready for a different kind of honeyflow. would laugh at our amateur efforts in the moving and transferring of four colonies in box-hives. To us, however, mere backlot, sideline amateurs, the prospect was one of intense interest mingled with a degree of hesitation arising from a badly bungled attempt at a similar feat in the dear dead days of long ago. Anyway, we were in for it, as a small group of colonies we had bought included these four in box-hives.

They had been hived in boxes about 24 inches long by 18 inches wide by 12 inches deep. From a very rough calculation I think that the comb space in these boxes will be somewhere near the Dadant-Quinby capacity, and it was certainly an argument for big hives to compare these four colonies with the other four in the bunch that were in eight-frame Langstroth hives. In the box-hives sticks had been placed both longwise and crosswise, and they were full of comb with powerful colonies, and nearly ready to swarm by March 15, which in this locality is early.

Just to add to our embarrassment, the four box-hives had been placed on the roof of a hen house that was quite difficult of access, and in addi-

tion they had been up there for several years in California sunshine and the boxes were full of checks and cracks that promised to leak a lot of hybrid bees with decided opinions as soon as any effort was made to close the hives. Our task was to get these bees down to the orange ranch thirty miles away, where our modest apiary was located, and then to get them into movable-frame hives. Several times did we scramble up a rickety ladder leaning against sagging chicken wire and walk across the thin and swaying roof of the building to look at those hives. We even considered the possibility of transferring them before removal. Subsequent developments make us thrill with a genuine thankfulness that the impulse was resisted.

At last we remembered reading somewhere about moving bees by wrapping the hives in burlap, and our friend who usually places his Ford truck at our disposal produced some large pieces that had been used for the shipping of furniture. Armed with these, a saw, some lath, nails, and a smoker, we ascended the roof just at sunset, when the bees were gathering for the night.

We spread a piece of burlap, smoked the entrance to the hive, gently lifted it onto the burlap, wrapped it up as if it were a parcel, and tacked a piece of lath over the folds of burlap at each end. Then we proceeded to carry the hives,

which were heavy with honey, down that rickety ladder at the imminent risk of breaking our necks, and about the time we reached the ground we found that they were leaking bees at about ten places per box. It appeared that there were various places in the burlap where there was a hole just large enough to permit bees to creep through, and we had to locate each of these and nail a piece of lath over it. Also in some cases the folds at the ends were less securely arranged than we had thought, and bees would come buzzing out in a most disconcerting manner. However, we fussed over the job long enough to feel that most of the leaks had been stopped and then loaded up the truck with our bees, including the four eightframe colonies.

To cut a long story short, we arrived at the apiary somewhere in the wee, small hours after having been stuck twice in getting from the paved road to the steep side of the gully where the bees are located, and our friend with the truck, albeit a pious old man, had received enough stings to considerably try his patience. At last the colonies were placed in locations shoveled out of the hillside and the burlap opened sufficiently to release them. They were then permitted to remain several days to recover their composure and to enable us to scrape out our stings-we had enough to last several days, too.

In the meantime we read up in our textbooks all that they had to say about transferring, and it sounded simple - though one noted that Father Langstroth (or his revisor) put in a cryptic remark that the individual who could successfully transfer a colony might regard himself as a real beekeeper, or words to that effect. He was right! However, we went hopefully forward and planned to drum the bees up into one of our supers, which would then be placed on a bottom board on the old stand. while we took the now empty boxhives apart and transferred the best of the combs and then returned them to the colony.

Seeing that we had only four to do, we left the job till afternoon, thinking that if robbing should set in, the ending of the day would soon put an end to it, for here in California there is usually a cool wind coming off the ocean about 4 or 5 o'clock in the afternoon that makes the bees shorten their day.

We took a dishpan for any combs containing honey that might not be transferred, a knife to cut out the combs, tools for opening the boxes, and a couple of handy sticks with which to drum on the hives. Our plan was to drum for awhile on No. 1, then drum for awhile on No.

2, and so on, so that all the bees might be "ascending"—to quote Langstroth— at the same time,

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Those bees had not read Langstroth, evidently, for they most obstinately refused to "ascend." We smoked the colonies, turned them bottom side up, and pried off the bottoms and one side. We placed our supers, containing perfectly nice old combs, above, and we drummed and we smoked, and we smoked and we drummed, until the entire apiary was in a pandemonium of flying, stinging bees.

The third colony we reversed showed well-developed queen-cells, and as we wondered what might be the cause we happened to look up, and there about ten yards away on a tree was a splendid swarm. We did not know if it had come from this hive, but it very likely had done so. So one of the two of us continued to drum and smoke those obstinate bees while the other hived the swarm.

Finally we resolved to tackle one of the four, as the time was going on, and so we placed it in front of the stand so that the many bees still on the old combs could join the others, as we might be able to brush them off the combs. We took an empty frame, laid it on a box, and proceeded to dig the combs out one by one with the butcher-knife, placing the larger combs, especially those containing brood, in the frames.

Here at this point we come to the one feature of our enterprise that was a shining success. We had thought of using gummed paper to fasten the combs in the frames. We had bought a roll of the manila paper, gummed, that is used in every store to substitute for string. Strips of this, carried around the frame and stuck end to end on the top bar, held the combs in place well, and a week later they were all gone except for traces on the top bar, while the combs had been nicely fixed in place by the bees. We suggest that this is better than wires or strings.

For the rest, let us draw a veil over the unutterable mess that followed. Our dishpan proved utterly inadequate for the large chunks of slippery, soft combs that came out, mixed with bees, and we found ourselves piling them in an empty hive that streamed honey at every joint. The sticks so securely nailed inside the boxes added to our troubles. In one case we tried to saw through the ends of two, and except for getting the saw into a mess of honey, and perhaps drowning a few extra bees, we accomplished naught.

The sun was setting as we viewed the battlefield. Two of the hives were fairly well transferred, and indeed afterwards these two have settled down in their new homes and are fine, big colonies. One-the one with the queen-cells-was a bad mess, and next day there were hardly any bees in it; our supposition is that they joined the swarm that was being hived, for it has made a very large colony. The fourth never got transferred at all, for time was so short that we ended by placing a super over the actual hive and fixing it up with rags so that the bees would use their regular entrance. We are hoping that the queen may "ascend" and give us the unutterable pleasure of slipping an excluder under her.

Now to draw a moral and we have done. The burlap mode of removal is all right if you have good burlap and fix it well. The transferring job ought to have been done at a time of year when there should be the least amount of honey in the hives. In our case they had stored considerable dark honey from eucalyptus that was sealed in the tops of the combs

and the end combs, while the others were more or less filled with very watery nectar from the first of the orange flow.

In order to render down the lighter of the combs, we built a sun extractor by using a window sash and building around it a bee-tight box just large enough to hold two washtubs, one sitting in the other. The top one has a number of holes in it, and as the sun melts out the honey it runs into the lower tub. We are going to use it also for capings.

Appointed State Entomologist

A. G. Stevens, of Lander, Wyoming, has been appointed State Entomologist for Wyoming, with his headquarters in Cheyenne. Before taking up his office Mr. Stevens is spending some time at the Colorado State Agricultural College, Ft. Collins, studying records, etc., as to bee diseases.

J. M. D.

San Diego County Has Wonderful Exhibit



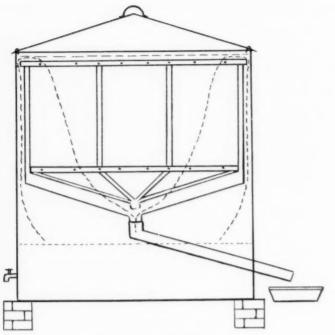
Built of the finest products of three leading honey dealers, the pyramid of honey as well as the various individual exhibits arranged by Fred Hanson, apiary inspector, at the San Diego County Fair attracted widespread attention.

The honey exhibit each year is one of the features of the fair, and the idea of a pyramid to represent one of San Diego County's basic industries was considered especially appropriate by the San Diego press and by visitors to the fair.

Clear amber tints of the bottled honey which made up the pyramid contrasted beautifully with a white background. Seven large glass vials were added by Hanson to the regular products of the three honey firms, George B. Wright, Charles Justice, and Dorwin L. Baker. Around the base of the pyramid was a row of potted palms, adding to the subtropical atmosphere of the fair.

Fred Hanson, who arranged the exhibit, is chief apiary inspector for San Diego County and one of the pioneers of the southwestern area's honey industry.

In addition to the dealers' pyramid, many exhibits were entered in the fair by individual producers for the numerous prizes offered. D. L. Baker, of El Cajon, superintended the premium exhibits.



A Satisfactory Wax Rendering Outfit

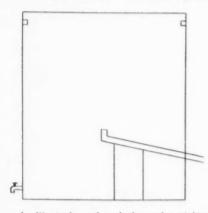
By P. E. Stewart

Outfit complete, showing arrangement and use

HERE is a wax-rendering outfit I have been using for two years and find very successful. Several have been to see it; some have recommended having it patented, but I fear the chances of selling the patent would not justify me going to that expense, so I am sending you the idea to pass on to other beekeepers.

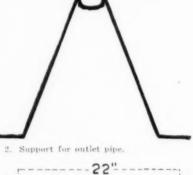
Figure 1 shows the big tank used as a boiler and container for the funnel-shaped tank in Figure 4, and screen wire basket in Figure 3 with inside supporting lugs. This big tank has a faucet to draw off hot water, also to act as a water gauge. The outlet pipe extends far enough to come over the pan or bucket in which

is made with an iron band around the top about ¼x1 inch, and the basket is 22 inches in diameter, supported with hooks attached to the top rim of the basket as shown. The sides and bottom are supported by galvanized sheet iron strips 2 inches wide, and the bottom drops about 4 inches to the center to form a funnel



 Big tank used as boiler and container for wax funnels. Note outlet pipe and support.

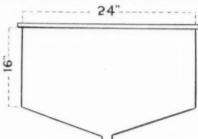
This outfit was built for \$8.75 complete, and before using it I found it not only hard but heavy work to render over 75 or 100 pounds of wax a day. With this equipment I can render from 250 to 300 pounds, with no lifting of heavy tubs and pots, as the trash and dirt stay in the screen wire basket and the wax runs out into the pan or bucket in which it is to be moulded. Added to that, you can have a ready supply of hot water for cleaning pans and other uses. Instead of the trash being wax soaked, it is water soaked and there is very little wax lost, if any.



 Screen wire basket which is filled with material to be rendered.

the wax is moulded. The support for the outlet pipe is shown in Figure 2, simply a heavy wire or metal support which will hold the outlet pipe in place.

Figure 3 shows the screen wire basket which is filled with old combs, cappings, or wax refuse. The basket



 Sheet iron tank or funnel which holds wire basket.

shape. The sides and bottom are made of screen wire and bolted in so that new screen can be installed when the old one becomes clogged up or worn out. A ring is placed in the bottom of the basket to make it handy to dump material out of it.

Figure 4 shows a galvanized shee iron tank which holds the screen wire basket in Figure 3. This sheet iron tank is made to allow one inch clearance between the sides of the screen basket and the sides of the tank, and a two-inch clearance between the bottom of the basket and the bottom of the tank. The screen basket hangs by the lugs on the top rim inside this galvanized tank.

A two-inch outlet is made in the bottom of the tank for the melted wax, tapering to fit snug in the outlet pipe shown in the outside tank in Figure 1. This inside galvanized iron tank also has lugs on the top rim to support it in the larger outside tank

Figure 5 shows the outfit complete, put together and ready to use. Note the lid on top. This must fit snugly in order to force steam through the cappings and old combs in the screen wire basket. The screen wire basket is in place inside the galvanized sheet iron tank which catches the meited wax and keeps it from falling into the water below. Its outlet fits into the pipe leading from the outside tank into the pan in which the wax is moulded into cakes.

The bottom of the big tank is filled with water and the entire outfit supported on bricks or other convenient supports and a fire built underneatr. Note too that the joints between the galvanized drip tank and the outlet pipe should be fairly snug to prevent

wax escaping at that point.

This rendering outfit may be used in the yard over a common wood or trash fire or indoors over a gas or charcoal fire. The water in the bottom boils; the steam goes up around the inner tank and over into the screen basket, containing the old combs and material to be rendered; and escapes through the outlet where the wax leaves the tank. I use my outfit in the yard where my bees are, over a wood fire.

Louisiana.

Comb Honey Bees

By Carl E. Killion

The article in the November issue, by Jes Dalton, "Caution in Going Over to Yellow Bees," contains some very good advice. In my own apiary, color is the last of the requirements in looking for a breeder.

Producing more comb honey each year causes one to look up other traits than color,—gentleness, and good honey gathering. Of course we must have the latter and all wish for gentle bees, amateurs all want the "purty" bees, too. But in comb honey we want finishers as well. Bees may be gentle, very yellow, and store very well, but if they do not finish their comb up with that beautiful polished look they are worthless for comb honey production.

Every year calls for a careful selection of my breeder. As I do all my queen rearing by the grafting method, I select three or four colonies showing as many desirable traits as can be found for good comb honey bees. From these I do all the grafting. At present my bees are not of the yellow type, but are real honey getters and the comb finishers are improving each year. Only once in a while do I see an article in the beginning that the see journals regarding comb honey bees, but from my own experience comb honey bees are very different from

the average run of bees for extracted honey.

From time to time new queens are bought for the purpose of testing, to find more good traits adapted for comb honey. Once in a while one finds a queen that is good, but most times they could be classed as only worthless except for a pretty color and storing well. Such traits, to the average queen breeder are enough to classify her as a good queen.

Of late I have been doing some experiments with rearing queens, using both Carniolans and Italians of my own strain for these experiments.

I have also used cells from a neighbor beekeeper who had bred his strain for twenty-five years for comb honey. With continued trying, breeding only the very best adapted for comb honey, who knows but that some day we can have a perfect comb honey strain of bees, and it certainly will take some careful study to get them up with Jay Smith's Kansas Bees.

A Visit to Jan Strgar

By W. S. Pender.

While in Jugoslavia I spent a very happy time with Mr. Strgar. He could not speak English and I could not speak his language which made it awkward as everything had to be spoken through an interpreter.

Mr. Strgar has a large business in the production and sale of bees on combs, and the system adopted certainly gives him bees in the easiest possible way. What are known as commercial hives are used, each about 27 inches long, 14 inches wide and less than 6 inches deep inside, made of % inch lumber.

The hives are placed close together in a row, say 12 ft. long and 6 hives high, or 72 hives altogether The bottoms project out about 6 inches and the entrance is cut out of the front board. The hives, when stacked, help one another in warmth and, for wintering, are almost like one hive. About 3 inches of hay is packed below and at the back. A wooden frame, into which boards slide, keeps the hay in position. The top is covered with a thick rug which hangs down about two feet on the back. There is no protection in

Such a small hive certainly induces swarming. Swarms are trapped in a swarm catcher placed in front of a hive as soon as the bees start out. No frames or foundation are given. Swarms are hived and it is not long before they have combs and cast swarm after swarm.

Since hives have to be shipped to customers all over Europe, very simple packing is necessary. The hive selected is slipped out at the

back and inverted on a table. The bottom is levered off and several slats of wood are laid over the bottom edges of the comb. Then when the bottom is replaced these slats press into the combs and are quickly secured by the bees.

There is a 3 inch diameter wire-covered hole in the back of each hive filled with a piece of wood. This is removed and a similar hole cut in the bottom. On the bottom a screen is now fixed about 2½ inches deep with wire on the two long sides. Here the bees can cluster. The entrance is blocked up. The hive is now an excellent shipping package, the combs being shallow and attached on three sides and to slats on what is now the top edge. It carries well.

In addition to these commercial hives there are several other kinds with frames. All queen-cells are secured from natural built cells. The commercial hives are readily examined. The hive is inverted on a table in front of an open door under cover, the bottom wrenched off and the bees examined. The queen can be found by drumming or, by using two thin sticks between combs, the queen can be made to come up.

Toward the end of the season the bees are shifted on a wagon to new fields where they may fill up for winter after which they are returned and packed as already described. There cannot be much wrong with such winter packing since the bees came through last winter when there was six feet of snow on the ground. Out-apiaries are around, in charge of a keeper, and are visited from time to time as necessary.

Mr. Strgar does not wear a veil and the only smoke used is from a lighted cigarette when he first opens the hive. The bees were exceedingly quiet, no honey being gathered.

Australia.

California Needs Rain for a Crop

The 1930 crop of honey for the state of California is in the lap of the gods. To date, there has not been a sufficient rainfall to produce a normal crop of honey; although it is possible that in certain small sections of the state, exceptions might be noted. Few of the veteran beekeepers of the state look upon the situation hopefully. Certain optimistic souls have broadcast the statement that "there is a good year ahead for the beekeeper." It is hard to see how they get that way; but so long as they do not say how far ahead the good year is, there is still room for an alibi.

Soil and plant conditions are undoubtedly better than they were last year at this time; and, if the rainfall, which is now below normal, could be increased a few inches, a fair crop of honey could be harvested. R. B. M.

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for May, 1930



DR. H. E. BARNARD, PRESIDENT

Allied Industries Issue Honey Recipes

The Pabst Cheese Company has issued a recipe for honey sauce for use on waffles. This sauce is easy to make and the combination of Pabst-ette and honey is delicious. Cards containing this recipe are available and are being widely distributed. The Home Service Department of the Ottawa Electric Company of Ottawa, Canada, has prepared recipe sheets entitled "New Uses for Honey." M. P. Richardson, Superintendent of the Home Service Depart-ment, writes: "Miss Barber, of the Kellogg Company, asked me to send you our recipe sheet for honey. We put this demonstration on a short time ago and it proved perhaps one of the most popular. If you have any recipes or material on honey, we would like to have them, as we are always looking for new ideas."

Honey Helpings for Breakfast

The Institute Clip Sheet, "Honey Helpings for Breakfast," mailed in January to teachers, food workers and syndicate writers, stresses honey as one of the best energy foods, its sugar serving as food for muscle activities. Seven honey menus with twenty-five recipes for honey breakfast combinations are included in this four-page mimeograph she Copies will be mailed on request and prices quoted on lots of fifty up to five hundred.

The Sunkist Menu

This is the title of a magazine of helpfulness published by the California Fruit Growers' Exchange, Los Angeles, and mailed to restaurateurs, chefs, soda fountain managers, soft drink owners, dietitians and food workers in general. It is issued monthly and carries recipes for the use of oranges, lemons and grapefruit. In the January number they included honey orange salad. Now they have honey in three of their fruit service suggestions: Sliced oranges, breakfast cocktail, sliced oranges canadienne.

The circulation of "The Sunkist Menu" is very great and beekeepers are fortunate in having the fruit interests enthusiastic about the use of honey with their product, for of all the attractive honey food combinations, fruit and honey is perhaps the best. Send for the "Sunkist Menu,"

Feb. 1930 Vol. 3 No. 2, if you are interested, to the California Fruit Growers' Exchange, Los Angeles, California, and state that you are a beekeeper interested in citrus fruit and honey combinations.

Unlimited Cooperation from the Cranberry Interests

Marcus L. Urann, of the Cranberry Company, writes: "We have done some work with honey, but have never brought out any recipes and shall be delighted if you will do so. We will use them in our advertising. We shall get out another million of our recipe folders next year and would like to include one or two honey recipes. Cranberry fritters or chess cake or turnovers used with a honey sauce is just as near a perfect food as one can imagine. It is possible that, when we run our next million leaflets, we could help you also and get yours for less cost. Let us know how many you want, and work out a design, if it interests

This letter is self-explanatory and there is no limit to the results in the way of honey publicity which may come from such a contact.

March Sheet of "Kellogg Menu and Recipe Service" Full of Honey Recipes

The Kellogg Company every month sends to sorority, fraternity, club and other group food managers, menu suggestions and a sheet of recipes. Every menu usually carries the suggested honey service with hot biscuits or muffins, but in the March menu every recipe given in the sheet calls for the use of honey in its formula. The recipes are for Honey Baked Ham, Raisin Sauce, Sweet Potatoes and Apples, Honey Krisp Whip, Buttered Beets.

These recipes are based on service to large groups, and, from Miss Barber's report, the stewards of the various college Greek letter groups are more than anxious for such suggestions.

Perhaps beekeepers could follow this work up by soliciting the fraternities, sororities, club groups, etc., offering honey in sixty-pound cans and asking the steward or buyer if they know of the service the Kellogg Company is offering in planning menus for a full week for each month, with recipes based on quantitative service.

The Institute has one little leaflet containing recipes for service to twenty-five, fifty, or one hundred persons. Beekeepers can get these at cost and distribute them to fraternities or sororities purchasing honey.

Diet Candy Made with Honey

Mrs. Snyder, so famous for her candy shops in Chicago, has recently started to make a "diet candy" containing honey. Here is the way Mrs. Snyder's advertising appeared in a recent Sunday Chicago Tribune: "Have you tried Mrs. Snyder's DIET CANDY? Made with pure Honey, fruits, cocoanut, molasses, and nut. One of the most delicious confections ever created by Mrs. Snyder and a regular health food."

The Institute ordered a box of this candy, writing Mrs. Snyder to inquire what reception it was getting from her patrons. Mrs. Snyder says: "It has been my object to make a candy which can be enjoyed by those who are not able to indulge freely in sweets. I think these diet candies are palatable and really enjoyed as much as those made with cane sugar. I have no recent statements from my customers about their reactions to this candy, but if I do I shall be happy to forward them to you."

Honey Unusually Popular in March Magazines.

Honey uses, honey stories and even pictures of honey baked goods were included in four nationally distributed women's magazines. Perhaps honey suggestions were made in many others for the Institute does not get an opportunity to check but just a few.

Did you see the beautiful bakery products pictured in the Fleischman ad, run in Pictorial Review, Ladies' Home Journal and Woman's Home Companion? Bakery Item Number Two was a Honey Product—"Honey Coffee Cake topped with honey and ground almonds is delightful for breakfast, luncheon or tea," so the copy read.

The picture was exactly like the Honey Coffee Cake, Mr. William Broeg, manager of the Bakers' Traveling School for Fleischman Company, showed Miss Fischer and Dr. Barnard during the time the school was held at Indianapolis. Just recently Mr. Broeg wrote from Texas where his school was located in March, asking the Institute to furnish him honey data for articles and school publications. You can readily see how interested he is in honey by the following quoted portions of his letter. William Broeg influences bakers all over the country.

"You know that I have been interested in preparing additional material for our use in the school and have recently been reminded of the fact that Honey is an ingredient of great interest to all of our students. We have only been casually mentioning the use of this ingredient in our class work and I would like to prepare a really first class scientific talk on this.

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I wonder if you could send me, already prepared material, or, have some prepared on the history of the product, its composition, the various types, such as sage, clover, orange, alfalfa, giving approximate prices and where honey can be secured in large quantities to make it interesting for the baker from a price standpoint. I wonder if you could also give me some dietetic information as to its health giving qualities. You, I believe, will know just what we need. The talk will be interesting and I am sure will stimulate the use of honey."

We have Mr. Broeg's schedule—he has asked us not to publish it but he will be glad to have beekeepers visit his school for bakers and talk honey with him. Beekeepers should not only call on Mr. Broeg when he gets into their location but offer to furnish him honey for his demonstrational baking classes. He may be responsible for getting your bakers as honey customers and it's worth your while to cooperate with him.

Write the Institute to find out if .
the Bakers' School is coming to your state!

Honey Recipe in Ladies' Home Journal.

How many of you noticed the honey recipe on page 124 of March Ladies' Home Journal? When you figure for a minute on the circulation of such a magazine as the Ladies' Home Journal, you can readily realize how one recipe calling for ½ cup of honey can in just one month increase the consumption of honey. Here's the recipe:

Swiss Fruit Salad Dressing:

3 egg yolks.

½ teaspoon salt.

½ cupful strained honey.

¼ teaspoonful paprika.

1 cupful whipping cream.

4 cupful olive oil.

2 tablespoons lemon juice.

Peaches, cherries and pineapple make the best Swiss salads with this dressing. Pour honey at the boiling point, very slowly into the well-beaten egg yolks. Then heat the mixture over the fire for just one minute, beating constantly. Remove from the fire and beat for five minutes before adding the olive oil, salt, paprika and lemon juice. Continue beating until the dressing is of the consistency of thick white sauce.

When cool, fold in the stiffly beaten cream.

This recipe is found in "The Readers' Recipes" and carries the O.K. of the Home Economic Kitchen for this journal. The column always starts with "We Test Our Readers' Recipes." The Institute is informed by the Editor of the Department of the Modern Homemaker for this journal that honey suggestions will be found in these columns from time to time.

Here's a thought—Why can't our beekeepers or members' wives send in more honey recipes—then more may be published!

Resume of Work Done on the Population of Bee Colonies

By Ray Hutson.

Colonies of bees were weighed on a No. 508 Fairbanks platform scale and then the weight of the bees alone taken by shaking the bees from the combs, reweighing the hives and figuring the difference between the second weight and the first one. At least ten colonies were included in each average weighing.

The average weight of overwintered bees at the time of fruit bloom was 2.7 lbs. The colonies were selected by two other beekeepers and the writer as representing better than average colonies at the time of year.

(From this work by Mr. Hutson we might expect that for the purposes of the fruit grower the ordinary package of bees received from the Southern breeder will do just as satisfactorily as colonies overwintered, at least in the climate of New Jersey.—Editor.)

A Novel Drinking Place

A simple way to provide bees with a clean, safe drinking place has been used by the writer for some time. In almost any farm community it is possible to find an old discarded disc harrow. The larger the discs the better. Take one or more of the old discs and have a garage man weld a wood screw with a large washer on its head into the hole in the center of the disc.

This plugs up the hole, gives you a large basin that can be screwed at the top of a post, and will hold at least a pail of water. The bees light on the edge and drink, and as the water recedes they walk right up to the edge of the water without danger of falling in it and drowning. This receptacle also makes an ideal bird bath, and I think most beekeepers are bird lovers.

William S. Ash, Minnesota.

California Almond Growers Offer Not Cooperative

R. B. McCain.

Up to the present time, discussion of the Almond Growers' proposition has been directed towards the development of sentiment either for or against the forming of a honey pool. In the nature of the case, the Almond Growers could do no more than to offer their facilities for the pooling of honey, and then to ask the beekeepers if they wished to use these facilities for their honey. As far as published accounts of meetings are concerned, the discussion has been characterized by a marked degree of unanimity. The beekeepers realize better than anybody else that cooperative organization is needed. But the beekeepers want coopera tion; and they have no desire to tie themselves to a wholesale distributing corporation in whose manage ment they have no voice and no vote.

The agreement sent out from the head office of Packing and Markeiing, Inc., has just come to hand. With deep regret it is discovered not to be a cooperative agreement at all. The beekeepers are asked to sign a document that binds them to turn over all the products of their apiaries for a term of nine years, with the privilege of withdrawal at the end of the third and the sixth year periods, to a corporation in which they have neither voice, nor vote, nor representation of any kind. These beekeepers are offered the opportunity to buy stock in Packing and Marketing, Inc.; but they are denied the privilege of voting in the stockholders meetings.

All the obligations of this agreement rest on the producer. The distributor is under no obligation to the producer, other than the obligations of common honesty and industry in the management of the pool. The price that the beekeeper is asked to pay for the privilege of turning over all his apiarian products to an alien corporation, is all expenses for insurance, warehousing, processing, packing, marketing and selling his products; and, in addition to all this, he obligates himself to pay into the treasury of a corporation in which he has neither voice nor vote, 5 per cent of what remains after all those expenses are deducted. The proposition is not cooperative in any sense of the word.

When the matter of a honey poor was first suggested, all the discussion was conducted along the line of a cooperative organization. When, where and how that purpose was lost it would be difficult to say. But it is to be hoped that a real cooperative agreement can be drafted and submitted to the beekeepers for their consideration.



More Adventures of the Bee Fairies

By Aunt Laura

Synopsis: Four children with their aunt, who is a beekeeper, are changed by a fairy bee, Fleet Wing, into bee fairy children and allowed to visit a colony, where they see and learn many wonderful things about bees. This time their guide tells them about baby bees.

Chapter 4 - Baby Bees

As they started from the quiet corner where they had been resting and listening to Fleet Wing's story of Madam Poor Site's adventure with the goat, Robert's sharp eyes spied something strangely white and glistening in the bottom of a cell.

"Look!" he cried; "do tell us what is that?"

Fleet Wing smiled. "Why, don't you know?"

The bee fairy children stooped to examine and found not only that tiny object, but others, many others, one in almost every one of the near-

by cells.
"What are they?" asked the chil-

dren eagerly.

"Those are bee eggs that our queen has just recently placed there," replied Fleet Wing. The bee fairy children inspected them closely. Very small and delicately white, with a stout, closely fitting covering, each

stood on end at an angle.

"We call our queen the mother of the colony," continued Fleet Wing, "and truly she is. Beginning with the warmer days of late winter or the very first days of early spring, this queen mother begins her egg laying. First we bees clean and polish every empty cell as shiny and bright as we can; then, moving quietly from cell to cell, she first peeps in to see if we have it cleaned out well enough for her; then she turns, backs down into it, lays the egg, and goes on to the next cell.

"In the early spring, when she is trying to get our family built up with plenty of bees for the honeyflow, she lays many, many eggs each day; but later in the season she takes things more deliberately, for then we do not need so many bees to carry on our work. Later I shall tell you of our queen, and perhaps, if she is willing and you are good fairy bees (here Fleet Wing laughingly winked at Aunt Laura), you shall be presented to her."

"How jolly!" cried the bee fairy children. "That sounds too good to be true," laughed Doris May, "but do please tell us more about the eggs."

"Queens lay their eggs in sort of half circles or groups, and we shall visit each of these," replied Fleet Wing.

"In the first place," continued their guide, "it may seem quite impossible, but soon each of these little eggs will develop into a baby bee—not a baby bee as you may think of a baby, but what we call a baby; for in about three days after our queen deposits these eggs they will begin to change and the nurse bees reach ing in will moisten the eggs with their tongues, and then, lo, the babies appear!"

Here Fleet Wing led the children and their Aunt Laura to another group of cells, and there as they peeped in they saw, not a tiny, tiny bee, as they had expected, but a little grub, very small, white and shiny.

"Why, that's a worm!" exclaimed

Dickey, scornfully.

"No, my lad," replied Fleet Wing with dignity, "that is a baby bee in its second stage. Isn't she a beauty? And here in these cells adjoining are her sisters, all exactly like her; some a bit larger, perhaps, but all fine, healthy, beautiful babies. I understand you humans call bees larvæ when they are at this stage."

"But what is that white stuff each one is lying upon?" asked Doris May.

"That, my dear, is her pillow," said Fleet Wing with a smile. "I have been told that your babies sleep on pillows made of feathers or down, so our pillows may seem very strange to you, for our babies are put to bed on a pillow made of the food they are to eat."

"Oh, oh!" cried the children, while Robert added, "How jolly," and Mildred giggled, teasingly, "Rob would like that."

Just then a number of bees came up. Each put her head into a cell, remained a moment, then departed, and others came up.

The children watched them a little while in silence; then Dickey inquired, "What are they doing that for?"

Fleet Wing smiled. "Those are nurse bees, and do you notice that each time a nurse bee visits a baby the pillow is a little larger?"

The children inspected the pillows carefully. "How? Do tell us why,"

they cried.

"Because the nurse bees leave with each visit a little more feed for them, but I shall tell you about that later. Just now let me tell you more about these babies. The little dears, lying curled up on these food-pillows, grow very fast—very fast indeed. In five and a half days they increase in size two thousand five hundred times!"

The children gazed at Fleet Wing in astonishment. It did not seem possible! Leading them a few steps over the comb to some cells where the baby larvæ were so large as to completely fill their cradles, Fleet Wing continued: "Only five and one-half days ago these babies were just emerging from the eggs, but now look at the dears! Aren't they beautiful? Such fine, fat, healthy, lovely darlings, and all because our nurse bees gave them such wonderful pillows to rest upon."

"It's a good thing humans don't have that kind of pillows, isn't it"."

laughed Robert.

"Indeed it is," replied Fleet Wing.
"I have been told that human babies grow very slowly." Then turning to Aunt Laura, she asked: "If a human baby grew as rapidly in five and one-half days as ours do, can you give these children some idea of how large it would be?"

Eagerly the children listened for Aunt Laura's reply, for each had in mind their own lovely baby cousin, dear Betty Jean, Uncle Dick's wee daughter, her sweet blue eyes, her tiny mouth, her dimples, her joyous laughter, her exquisite baby ways.

Aunt Laura thought a moment. "If our Betty Jean grew as fast as a baby bee, two thousand, five huncred times in less than a week, we would have to have a great truck to carry her about. She weighs twelve pounds now; next week she would weigh fifteen tons. Dear, dear, what a baby she would be! What would Uncle Dick and Aunt Betty do with her?"

"No basket in the world would hold her, would it?" gasped Doris May.

"She'd be bigger'n any elephant that ever grew," added Dickey.

"Think how much she would eat," laughed Robert.

"And what yards and yards of goods it would take for her dresses," added practical Mildred. "I'm glad human babies don't grow that fast."

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Fleet Wing smiled. "You see, my dears, God must have thousands and thousands of us to carry on His work. It takes so very many of us to visit all of the flowers, to fertilize the blossoms, to do the work for which He created us, that we have to grow fast, for our lives are very short; but you have other work to do, work to make the world better and happier, so you are given more time to grow and develop and learn how to do your part best. It is all part of God's wise and wonderful plan. But now you want to know more about our babies, and over here are some in the next stages of development."

Fleet Wing led them to a group of cells where worker bees were busil, placing over each cell a covering of thin wax.

"As soon as our babies are full grown and nicely fill their cradles, which you humans call 'cells,' our worker bees tuck them to rest with this coverlet of thin wax and a bit of pollen, and there, all snug and comfortable, each baby spins for herself a kind of silken blanket like a butterfly cocoon.

"This takes the baby about one day; then, with her mouth toward the opening of the cell, the larva rests and slowly and wonderfully trebody changes until, on the nineteenih day after coming from the egg, the baby gnaws a little opening in the top of the cell by trimming off the coverlet of wax.

"See, here are several babies quite ready to greet the world," and Fleet Wing led the bee fairy children to a group of cells where here and there a bit of capping could be seen moving or a tiny dark head appeared.

"Ah, these dears are getting hungry! Spry, Downy, Black Face,—will you please feed these babies so our guests may see how it is done?"

(In our next issue the bee fairy children will learn about feeding the babies and continue their adventures in the colony.)

Let Aunt Laura and the Fairies Have a Place

I write to tell you that you have made a sensible break in letting Aunt Laura and the Fairies have a place in the American Bee Journal. I am sure a story can be made a very good medium for spreading knowledge, and Aunt Laura—who for all I know may be an old Batch,—is hitting along the right line. She has a chance to give much to the beginner in building a foundation for broader knowledge of beekeeping. I wish success to the Fairies.

Herman Ahlers, Oregon.

HYBRID BEES

HERE is a Last Minute Bargain in PACKAGE BEES with the Standard PETTIT SERVICE and guarantee of Complete Satisfaction.

Most of our Italians being ordered we have purchased 500 colonies of Vigorous Hybrids just building into strength for a late flow. We will use them in our Canadian Honey Yards and will sell them with the same high quality pure Italian Queens sent with our best bred Italian workers, at the following attractive prices:

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Lewis and Dadant Bee Supplies are known throughout the land. We have everything you need to help you make the most from your bees

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The kind WE use in our extensive Michigan Apiaries, where we produce honey by the carloads.

Choice untested Italian Queens 75c each; 10 or more 60c each. Tested, 50c each extra. Write for prices in large quantities.

All queens sent from Sumterville, Alabama. Address for quick service.

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DOLLAR. This variety does not carry the
spores of the grain rust. It is well suited for
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THE EDITOR'S ANSWERS

When stamp is enclosed, the editor will answer questions by mail. Since we have far more questions than we can print in the space available, several months sometimes elapse before answers appear.

MAY DISEASE.

I have 17 colonies of bees, in movable frame hives, two of which are diseased. One is badly diseased, and one slightly diseased. It seems that just the old bees are affected. They look black and slick and seem always full, but are forced to leave the hive. They stay close around the hives until death. Something near a double handful die daily. The alighting board is soiled slightly with yellowish spots. Would be pleased to have your advice.

P. S. Both colonies are medium strong. ARKANSAS.

Answer-The disease you mention is usually called "May disease". It is due to inferior honey consumed while the bees were confined to the hive during the cold weather. There are other spring diseases, but we have never seen them in this country.

Some people advise sprinkling the combs with powdered sulphur, but it seems to me that all this does is to kill the diseased bees. Sometimes it kills the brood which it touches. I believe it is best to feed the bees with sugar syrup with a little pepper in it.

However, as the summer weather is coming it is quite probable that, by the time you get this letter, the disease will have disappeared. We have rarely seen it continue until June and we have never seen but one colony die of it. This was because the queen also got the disease.

REPEATING EFFORTS TO SWARM.

REPEATING EFFORTS TO SWARM.

I wish to ask you a question and receive from you an answer to it that will solve my trouble with a swarm of bees that I hived a few days ago.

On April 23rd I had a hive to cast a swarm but the queen failed to get caught in the trap that I had on the hive and the bees returned back to the queen, and the next two days (April 24th and 25th) were cloudy and they did not attempt to swarm, but on the next day (26th) a warm day, they came out for the second time and I put them in a new hive with new full sheets of brood foundation but for some reason they do not want to stay and have tried to get away every day since. After they had twice attempted to leave their new home, I caged the queen and hung her in the hive thinking that there were two queens, but on the next day after caging the queen they again tried to leave and while the bees were out I looked in the queen trap on the front of hive to see if there was another queen in it but there were none in or about it, so then I went through the hive (which had only about a dozen bees in it) looking for another queen, but none could be found except the one that I had in the cage.

After caging the queen I put a feeder in the hive to cause them to draw the comb foundation so that if a virgin bee should be among them she would begin to lay eggs. They drew the comb a little but not much and that was just close to the feeder. My reason for putting the feeder in, is that they did not seem to be doing any field work. Of course there is not much in the fields now for them but my other hives are bringing in some.

I did think that I would unite them with a 2 ib, backage of bees that I received from

now for them but my other hives are bringing in some.

I did think that I would unite them with a 2 ib. package of bees that I received from the South about 15 days ago, but am afraid to do that as they may cause that hive to act the same way.

Now if the thing to do is to unite them to this other hive, how long should I leave them without a queen before uniting them and should I punch small holes in the paper between the two hives or let them do their own punching; also should I put some small object under the edge of their hive body to

give them air while they are gnawing through the paper?

Please tell me what is the trouble and

-You do not state whether those bees had any honey, in the hive from which they swarmed. My supposition is that it is not "swarming" but "desertion". They are short of stores, so they cannot breed and they abandon their hive to seek other con-

If I had that swarm, I would give it a comb of brood and honey from some other colony. That would make them feel new courage. The queen would probably go to laying and if you give them some sugar syrup regularly, they would breed.

You must bear in mind that a swarm which is destitute needs a great deal of help. If you give them comb foundation and they find no honey in the field, they will need a great deal of food to enable them to lengthen the cells of the foundation.

At this date of the year, when the weather is cool and nothing is coming in, it takes close to 20 pounds of good sugar syrup to build a pound of comb.

I would not try to unite them with another colony. If you give them some help, I believe you will find that they will regain their courage, if they are not too weakened in numbers. It is worth trying.

VARIATION IN BEESWAX.

VARIATION IN BEESWAX.

1. Is there a difference in wax? I rendered wax this week and got some fine light yellow wax as a result; then at the last put several rmall clear cakes of about 1 pound each and one cake of old wax of about 2 pounds that I found in the pans of an old "Solar wax extractor" that I bought, and melting this up in a pressure cooker with plenty of water I found the dark wax had discolored all of the yellow in the new cake formation. What about keeping different waxes separate when intending to exchange for foundation?

2. Have some hives very strong with

. Have so some hives very bees and wish to add a second hive body. Is there enough nectar between fruit bloom and white clover to do this? I want to give them room and eliminate this factor as a

swarm inducer.

3. Should I place hive with foundation full or only few frames above or below the hive of brood?

I noticed that normally the bees keep the

brood below but I also realize that the upper part of the hive is the warmest.

-1. The dark wax which darkened the light colored wax was probably colored by rust. There is nothing worse than rust to dilute itself in beeswax and that is why it is always recommended not to use iron pans or utensils for rendering wax. It would, of course, have been best to keep this wax separate from the light-colored wax.

- 2. I do not know the resources of your locality. There is usually a shortage of blossoms, excepting dandelions, between fruit blooming and clover. If you wish to give them room during such a shortage, you had best feed them some.
- 3. Putting the hive of foundation above or below should be decided according to the warmth of the season and the number of bees in the hive. If it it a very strong colony, then put the new story above. If there

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is any doubt, better, for a while, put the brood combs above. Your action should depend upon conditions.

A HARD TRANSFER.

My man on the farm last summer ran out of frames, or at the particular time when the bees swarmed could not find frames, so used in place of frames 1-pound sections beeway fencing and other material. I did not discover the blunder until a few days ago and was surprised to find the bees well and apparently satisfied with their condition. You understand, they have built their comb in a hap-hazard manner and in all conceivable shapes.

This is a Langstroth 8 frame hive. Will you kindly advise me what to do with it?

WEST VIRGINIA.

Answer--A transfer of this kind will be a difficult job, because of the smallness of the spaces in which the comb is located. Perhaps it would be best to drive the bees into an upper story supplied with frames full of foundation, then put a queen excluder between it and the old hive. In this way, the brood will hatch out and you may then remove the hive containing that comb and transfer it at leisure. It will take 21 days from the time when you drive the queen into the upper story, before all the worker brood is hatched and if you leave the old hive below the bees will not put much honey in it unless the crop is heavy.

To drive the bees to the upper story, place the new hive on top and drum the lower hive with a stick after having given it a lot of smoke.

SWARM PREVENTION.

Would like to know how to stop bees from swarming? I know of one way by cutting mother cells. This is too much trouble. Could you tell me another way to step them from swarming?

ILLINOIS.

Answer-The method of cutting out queen-cells to prevent swarming is some-times efficient. But in most cases if the bees want to swarm they will build new queen-cells immediately.

The swarm may be kept from getting away by clipping the queen's wings. But this does not prevent them from trying. Besides if they rear queen-cells, they will swarm when the young queen hatches

To keep them from wanting to swarm a number of conditions must be fulfilled. They must have a young queen, as they are more likely to make queen-cells to replace an old queen. They must have few drones if any. This is done by keeping drone combs out of the hive. Drones are noisy and bulky and annoy them.

There must be ample room for both brood and surplus honey. There must be ample ventilation in front. We usually raise our strong colonies from the bottom board, in front.

There must be plenty of shade, for the sun shining on a hive makes it inconvenient for the bees to live in it, in hot

With all these requirements fulfilled, it may be necessary to remove a part of the brood. This may be done to use it in weaker

DIVISION BOARD FEEDER FOR WATER

1. I would like to have your opinion of the Doolittle Division Board Feeder. I intend to try your watering plan this spring.

2. Would this feeder be put in the cetter or to one side of the cluster? Would it interfere with the queen's moving from one part of the hive to another?

3. What substitute would you suggest



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2-lb. package bees with queen \$3.00; 10 or more \$2.75 each 3-lb. package bees with queen 4.00; 10 or more 3.75 each Untested queens \$1 each, \$10 per dozen and \$75 per 100 Tested queens \$1.50 each

Safe arrival and satisfaction guaranteed on every package and queen shipped.

Our regular summer prices will be in effect on queens June 1st.

Lewis Beeware and Dadant's Wired Non Sag Foundation

YORK BEE COMPANY, JESUP, GA.



Sweet clover is one of the most valuable crops grown in the northwest, high in protein, the basis of animal growth, and best forage for livestock and bees

A BEE PARADISE

The acreage of sweet clover is rapidly increasing in the Red River Valley and North Dakota, used for both pasture and hay. Beekeeping and livestock raising are growing at a corresponding rate. Lambs, wool, dairy products, and beef, are produced on low cost basis on cheap lands. Following is estimated acreage of sweet clover in several North Dakota counties in 1928:

GRAND FORKS COUNTY	30,000	Acres	RAMSEY COUNTY	28,000	Acres
CASS COUNTY	25,000	Acres	TOWNER COUNTY	20,000	Acres
NELSON COUNTY	19,000	Acres	PEMBINA COUNTY	25,000	Acres

Conditions are equally favorable for bees and livestock. The best feed and forage crop is grown easily and production cost is low in comparison

with other localities. It is claimed that sweet clover produces as high as 200 pounds of honey to the acre. The season extends from June until October. Honey of the finest clear quality is produced. Best authorities and experienced keepers predict that North Dakota will soon lead in honey production.

Write for FREE BOOK on farming resources of North Dakota, and information about

E. C. Leedy. Dept. J. Great Northern Railway LOW HOMESEEKERS ROUND TRIP EXCURSION RATES

May

for pollen in the early spring? How can pollen be saved for this purpose?

WISCONSIN.

Answer-1 The Doolittle division board is all right to feed bees, if its walls are not leaky. Usually, they cover them inside with some material like beeswax. We use a float on the inside so that bees will not fall in the liquid.

2. The feeder must be placed on one side of the brood chamber, because otherwise it would cut the brood chamber in two and thus interfere with the laying of the queen.

3. In lieu of early pollen, we have often given flour to the bees, in boxes, out-ofdoors. The flour must be well packed with the hands, so that no bees will drown in it. We know that the scientists object to the use of flour. But we have used it many times in early spring, before there was any pollen and our opinion of it is good and it agreement with the opinions expressed by Dzierzon, Langstroth, Quinby and others. This flour is used only a few days in the very earliest of warm days, because pollen is soon available.

WATER AND POLLEN SUBSTITUTE.

WATER AND POLLEN SUBSTITUTE.

1. Noticed in the February issue as regards water for colonies. Please explain fully where to locate the fountain, and how to supply, weekly or monthly, used for winter packed hives for 5 months.

2. Also on page 86, referring to rye and wheat flour for pollen, and made into a lump, and packed in boxes. How can flour he made into a lump without being wet, and if wet, will be very hard after it is dried.

3. What kind of boxes, referred to, as open boxes, would be filled with rainwater.

Answer—1. Water for hees does not need.

Answer-1. Water for bees does not need to be furnished in cold weather, but only when bees can fly and are likely to raise brood. At other times they do not need We place the fountain in any conwater. venient place, away from the live stock. In the sun, near the vegetable garden, is a good location.

2. In speaking of rye and wheat flour for bees, it would probably be more appropriate to say "packed down with the hands." Of course we do not wish to make it into a ball that may be thrown around. but we wish it packed down so the bees will not raise a dust when alighting on it.

3. As to boxes, there is no need to have them exposed to the rain. Flour is given only on sunny days and only for a few short days. If you wish to place your boxes in shelter, it would be all right. But we simply use any kind of shallow boxes. which we put into shelter at nights and when the weather is unfavorable.

CHOOSING A LOCATION.

As I am a stranger to this country and ry much interested in becs and poultry very much interested in becs and poultry and as I intend taking up that occupation in the near future I would be thankful to you for any information you give one to that effect: also the best localities for starting in the bee line I have had 4 years' experience with some of the best beekeepers it Australia, where I have come from a short time ago. I may say that your journal is greatly appreciated there. Of course I should say also that I have been handling bees nearly all my life. I am Irish and have been there for a few months last summer.

NEW YORK.

Answer-I enclose a list of bee books. As to the best localities for bees, there are good ones in every state, although I think that California is the best bee state, but it is also most stocked with beekeepers.

Rut you can find very good localities in New York State or any of the Middle States. Michigan is good, and even in the



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RATES

PROGRESS

No industry has ever been known to grow and prosper by keeping moss-covered traditions. Beekeepers are progressive and will not permit their business to stand still because of traditions that prevent normal development. Now, if ever, beekeepers must take advantage of new improvements. Times are changing—new life has come into all industries, and beekeeping will not stand still and be lost in the forward movement of the world's progress because of a false prejudice.

Beekeepers are going to take advantage of every opportunity to make progress—to keep beekeeping advancing with our modern times. This means that the most modern equipment will be used to cut production costs and to secure more satisfactory results. Better combs are one of the most important steps in the progress of beekeeping.

Three-ply foundation is the solution of this problem for thousands of beekeepers, both large and small. After giving various kinds of foundation a fair test, they have proved to their own satisfaction that Three-ply foundation makes the best combs. Their results speak for itself. That is why 47% more Three-ply foundation was used last year than during the previous year—an increase of 300% in the last three years. Success cannot be denied with such tremendous increase in use. Three-ply production is now ahead of last season, a good indication for another smashing record in 1930. The beekeeping industry is going to progress—grow—prosper. American beekeepers are not going to stand still.

THE A. I. ROOT COMPANY OF IOWA



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WAX FROM THREE-PLY COMBS IS AS PURE AS ANY WAX FROM ANY BROOD COMBS

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BS

Dakotas you can find good bee locations, where they grow the sweet clover or millet and winter their bees indoors.

The best plan for you is to go where you think you may find good locations and enquire about beekeepers. These will give you some advice as to where to locate.

WHAT IS PURE HONEY?

1. Will pure honey granulate, candy or sugar?

2. Is pure honey, in the comb, in the same form (chemically or otherwise) as the nectar in the blossom? 3. Is honey made from sugar syrup by bees more or less likely to granulate than honey made from blossoms? 4. Is it true that tree honey, that is:

ey made from biossoms?

Is it true that tree honey, that is:
ey made by the so-called wild bees in a
tree, never granulates?

What causes granulation?

OREGON.

Answer-1. Pure honey will nearly always granulate in winter, although there are a few kinds that do not granulate. Some people call this "candy" or "sugar", but granulate is the proper word. In some parts of Europe they are so used to the candying of honey that they will not accept honey in winter unless it is granulated.

2. No, pure honey is not the same as the nectar of the blossoms. Nectar contains considerably more water than the hone, which is made from it. Besides, there is a chemical change in the honey-sack of the bees which chemists explain.

3 You cannot make honey from sugar syrup, even if you feed it to the bees. It will change a little but retains the properties of sugar. It will not granulate like honey, but may "crystallize" in the cells and become as hard as rock candy. We have never seen granulated sugar syrup resembling granulated honey.

4. There is no reason why honey gathered by bees and kept in bee trees should differ from that harvested from bees in a hive.

5. Granulation is caused by a hardening of some of the constituents of the honey. when exposed to the air.

Who is Riem, mentioned on page 109 of your Huber book?

Jean Riem: A German Agronomist, born in Frankenthal, in 1739, died in Dresden in 1807. He was first a pharmacist in Manheim, then he founded, in Kaiserslautern, in 1768, a society of apiculture which was later established on a wider plan and be came a physico-economic association, transferred to Heidelberg. Having been annoyed, as director of this association, by all sorts of quarrels, he went to Prussia, and, in 1776, he became inspector of bees in Grunthal, near Breslau. After having occupied several appointments, he became, in 1778, Mission Councilor at Dresden. There are several works by him: Education of Bees Improved for all Countries; Manheim 1775; Bee Library, Breslau 1776; Practical-Economic Cyclopedia, Leipsig 1785; Quarterly Review, Dresden 1787-1789; Rural Economy 1792: Cultivation of Wheat, 1800.

MEETINGS AND EVENTS

Current association meetings and organization notices are published in this department each month. Secretaries and other officers of organizations who wish publicity here should make sure that notices are sent in before the fifteenth of the month preceding publication. Frequently notices are received too late for use and consequently do not appear at all.

Cook-Du Page Meeting.

The Cook-Du Page Beekeepers' Association held a very interesting and instructive meeting last Monday evening, April 7th, at the Bismarck Hotel in Chicago. Prof. Luce Lineburg of Lake Forest College, talked about getting the bees ready for the honey flow. Any beekeeper who missed this meeting missed some information which would actually mean more dollars this year from his bees.

The next meeting of Cook and Du Page County beekeepers will be in a bee yard easily reached, and all persons desiring to receive a notice of this meeting, send your name to A. D. Boal, Downers Grove, Illinois. There will be interesting talks as well as demonstrations in handling the bees.

Demonstration Apiary Work in Iowa.

There is more interest being manifested this year in the demonstration apiary work than ever before in the history of the work in this state. Mr. A. D. Worthington is unable to attend to all of the demand even with his entire time.

This is the finest piece of extension work we believe has been put on by any state. It takes the place of written information and is much better. We believe what we see and these demonstration apiaries sure do show results.

Additional Inspectors For Iowa.

Beginning April 1st, two additional inspectors were placed in the field for work in organized territories. Mr. R. T. Nelson, who has been county agent, is taking one of these temporary appointments. Mr. Huehn is taking the other appointment and will work with Mr. Shipton in the area clean-up territories.

Radio Talks from WOI.

A series of radio talks on beekeeping will be given by the staff at Iowa State College from WOI beginning April 11th at 1 p. m. and continuing for ten weeks. The subjects are based around timely information but also include general talks on bee behavior and honey as well as market-

F. B. Paddock.

Scottsbluff, Nebraska.

On March 4th, a meeting of local beekeepers was held in Scottsbluff. Nebraska to form a local association. Only a few members were present but they went ahead with the work and elected officers and set the date of the next meeting as April 4th, this meeting to be a banquet at Gering, Nebraska.

The ladies of the First Christian Church served the banquet to thirtythree. The purpose and aim of the association was outlined by the president, and the vice-president and

secretary also gave talks.

This gives Western Nebraska a good start and it is the plan of the organization to increase the membership so that every one interested in beekeeping in this section will be a member. Each one joining the Association becomes a member of the Nebraska Honey Producers Association. This makes our local Association affiliated with the State Association. and should, therefore, be a big help toward organized apiculture in the state.

The second Sunday in June was set as the date of our field day meet and the fair grounds at Mitchell, Nebraska as the place. Each will bring their own lunch and an interesting program will be arranged. At this time we hope to have Mr. L. M. Gates and Professor O. S. Bare, as well as Mr. V. W. Binderup, President of the State Association, with

Ralph W. Barnes.

Orange Co. (Cal.) Meets.

Beekeepers of Orange County, California, met recently under the auspices of the County Farm Bureau, Beekeeping Department. About 100 beekeepers were in attendance, and all phases of the honey producing industry were discussed. Production cost has been studied by this group for a number of years past. In 1927, the average production per colony was reported to be 40.9 pounds; in 1928 it was 46.2 pounds, and in 1929 it was 41.5 pounds. According to these records, the beekeeper puts into each pound of honey that he produces about 8 1/2 cents.

Orange County Beekeepers' Club, meeting at Santa Ana, elected for the ensuing year the following officers: Gerald Thomson, Fullerton, president; P. L. Crump, Santa Ana, vice president; and C. E. Lush, Orange, secretary.

R. B. M.

Colorado Bee Men Hold Convention.

The thirty-fourth annual convention of the Colorado Honey Producers' Association was held in the Auditorium Hotel, Denver, March

(Continued on page 250.)

DOINGS IN THE NORTHWEST

By N. N. Dodge

Colorado Bee Man Turns Editor.

In Crawford, Colorado, an enterprising young bee man turned editor over night. Clarence E. Drexel, junior partner of Drexel and Sons' Apiaries was asked by the local Chamber of Commerce to keep the town paper going while a new editor was being sought, the former having left for parts unknown. Mr. Drexei reports that he made the most of the opportunity to tell the citizens of Crawford all about the corn sugar

Ten Per Cent Loss In Intermountain Region.

Reports from the Intermountain region indicate that properly protected colonies wintered exceptionally well, but those carelessly prepared for winter suffered heavy losses. The mortality is estimated as an average of ten per cent. Honey plants are in normal condition, but

another dry season is expected in many localities because of insuificient snowfall in the mountains which means a shortage of irrigation water next summer.

Oregon Interested In League Program.

According to Professor H. A. Scullen of the Oregon Experiment Station and Secretary of the Oregon State Beekeepers' Association, the beekeepers in Oregon are much interested in the efforts of the American Honey Producers' League to schedule speakers and otherwise assist with the programs of beekeepers' meetings. The Oregon State Beekeepers' Association will cooperate heartily with this work.

Fruitgrowers of Oregon are becoming more and more interested in the pollination activities of honey bees, according to Professor Scullen. Plans are on foot for a combination meeting of the State Beekeepers Association and the State Horticultural Association, with the possibilities of some sort of affiliation.

Plans For Pacific Coast Experimen. Station.

Efforts of Western beekeepers to secure an adequate appropriation for the establishment of a Pacific Coast Experiment Station in Apiculture are meeting with some success. According to telegraphic reports from Senator Steiwer of Oregon, a bill for the appropriation of \$15,000 for such a station has passed the Senate.

Board of Directors of Mountain States Association Meets.

A meeting of the Board of Direc tors of the Mountain States Honey Producers' Association was held in Salt Lake City on April 7, 8 and 9. Mr. A. W. B. Kjosness, Manager of the Association, reported a nationwide slump in the movement of honey due to industrial conditions and large honey crops in foreign countries which have been importing American honey in past years. He stressed the importance of honey publicity in bringing the food and health values of the sweet continually and forcibly to the attention of American housewives. He further pointed out the value of well established honey brands in maintaining consumer confidence in the quality of honey available at the retail stores.

Hall After Facts on Western Conditions.

Mr. T. R. Hall, in charge of the Seattle office of the Bureau of Agricultural Economics, has been concentrating his efforts toward obtaining accurate information regarding conditions in the honey industry in his territory. Late in March he made an extended trip into Eastern Washington to investigate conditions there. He has made important contacts with leading steamship lines operating be

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We can supply our high grade, over weight packages for MAY 10, or later shipments. They will build up fast and give real results. Get our package prices at once. Our QUEENS are as good as money can buy, and LOOK what reasonable prices. SELECTED untested: 1 to 9, 75c; 10 to 99; 70c; 100 up, 65c. Order direct from these prices as we offer a MONEY BACK guarantee of SATISFACTION.

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LANE CITY, TEXAS

2-lb. Packages With Queen \$275.00per100 WE GUARANTEE No Disease Safe Arrival Satisfaction

Untested Queens \$80.00 per 100

Combining 25 years' experience as honey producers in the North with 30 years' experience as queen breeders in Texas, to give you the utmost in QUALITY-SERVICE-SATISFACTION

Write for prices on small orders.

1-lb. package

We will be glad to furnish you with one or 1000 queens.

1 to 11

\$2.00 3.00 4.00

11 to 20 \$1.75 2.75 3.75

Queen with each package.

2-lb.

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Selected untested queens, 1 to 11, \$1.00; 11 to 20, 85c All bees and queens pure Italians.

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Honest quality, weight and service backed by a lifetime experience in breeding and shipping. Usual guarantee of service, satisfaction and safe delivery with each shipment.

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If you order from

STEVENSON'S APIARIES WESTWEGO, LOUISIANA

you will get select young queens, home-grown by expert breeders; half pound overweight; your packages shipped day designated, in light cages that fit in standard hives, at a reasonable price.

Queens are caught, cages filled and shipped the same day direct to you from New Orleans. Customers from 34 states praise gentleness, prolificness, and honey producing qualities.

Price list and testimonials furnished

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1 10 \$ 3.00 \$ 2.75 100 \$ 2.70 \$ 2.65 \$ 2.60 3-LB. PACKAGES, WITH QUEENS

50 100 \$ 4.00 \$ 3.70 \$ 3.65 \$ 3.60

> Young laying queens, before June 1st-1, \$1.00; 10 or more, 90c each.

Queens after June 1st-1, 80c each; 10, 70c each; 100, 60c each.

Shipped in NEW cages, with NEW feed cans. No cages to be returned. Why take chances with used

R. E. LA BARRE BOX 172 COTTONWOOD, CALIF. y

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tween Puget Sound ports and foreign countries, and receives immediate information regarding any honey either imported or exported through tnese ports. The completeness and accuracy of his reports are greatly appreciated by beekeepers in the Pacific Northwest.

Guatemala Honey In Northwest.

Guatemala honey, packed in glass and tin retail containers, has made its appearance in Northwest markets for the first time in several years. It is being distributed by the Corona Coffee Co.

Flour and Honey Selling Together.

An interesting honey selling campaign is being conducted in Northwestern Washington through the cooperative effort of the Albers Brothers' Milling Co., manufacturers of Albers' Flapjack Flour, the Pacific Slope Honey Co., and the Safeway System of grocery stores. A combination offer of a package of flapjack flour and a pail of honey is being made by all of the stores in th. system; window and counter dis-plays, newspaper advertising, and special efforts on the part of the groceryman being used to attract the interest and attention of the public.

A Marvelous Orchid from Madagascar

(Continued from page 224.)

In order to remove the pollen masses, a moth must insert its tongue up to its very base, or otherwise it will not come in contact with the sticky discs. Hence plants with long nectaries will be best pollinated, and moths with the longest tongues will get the most nectar. Consequently there has been a race, says Darwin. between the plants with the longest nectaries and the moths with the longest tongue, in which the orchid has triumphed, for it still flourishes and abounds in the forests of Mada gascar.

Possibly the curiosity of the reader will lead him to inquire how I obtained this photograph (cover picture). Have I ever been to Madagascar? No, this has not been neces sary. In the greenhouse of the Haivard Botanic Garden in Cambridge there is a plant of Angraecum, a flower of which, when it bloomed the past winter, was sent to me to photograph. The nectary was fully twelve inches long and the flower seven inches broad. There was about an inch of nectar in the nectary. In order to show the entire flower in a field of a 5x7 plate, it was necessary to reduce it in size and to coil the nectary into a circle.

USE HOWELL'S HIGH CLASS QUEENS

See the difference when honey time comes

Untested, \$1.00 each; ten for \$9.00; fifty for \$40.00

D. W. HOWELL SHELLMAN, GEORGIA

Believe It Or Not

A lady wrote to this office recently to inquire if a queen and drone put into a hive alone would produce a swarm of bees.

While this is not possible in the honeybee family, a thing that seems almost incredible does occur. A laying queen and 2 lbs. of worker bees (about 10,000) may be shipped from South to North, possibly 2,000 or more miles, installed in a bee hive containing combs and developed into a populous colory of 60,000 or and developed into a populous colony of 60,000 or 70,000 bees within 8 or 9 weeks, which colony, under favorable conditions and with intelligent management, may store 200 lbs. or more surplus honey the same season.

A Sound Investment

Has it ever occurred to you that an investment in package bees and queens and beekeeping equipment will, under favorable conditions, yield profitable returns within five months? What other business of a like nature offers this opportunity right now?

A Few Little Tips

Beekeepers: Please don't allow a weak colony to drag along in the spring and possibly die, when a 2-lb. package of bees added at the right time will save the day.

If a worthless queen is found be sure to pinch her head and introduce a good one. If a dead colony is found, don't let the moths and mice eat up the combs, but get a package of bees with queen to put into the hive.

By the way, we have a revised booklet, "Combless Package Bees," which contains the details of package bee management for best results, which may be yours for the asking.

AND CANADA ONLY

1 to 24. 25 or over. Quantity: Untested __ \$1.25 ea. \$1.00 ea. Tested ____ 2.25 ea. 2.00 ea.

Customers outside U. S. A. and Can-ada must add 25 cents per queen to above prices to cover extra postage and cost of larger cages.

QUEEN PRICES for U.S.A. COMBLESS P'K'G BEES BY EXPRESS (No Queen)

2-LB. PACKAGE OF BEES 1 to 24 pkgs. 25 to 49. 50 or over. \$3.50 ea. \$3.00 ea. \$2.50 ea. 3-lb. PK. of BEES (best for orchards) 1 to 24 pkgs. 25 to 49. 50 or over. 4.50 ea. 4.00 ea. 3.50 ea. 4.50 ea. 4.00 ea. 3.50 ea. Add price of queen wanted to price of package.

THE A. I. ROOT COMPANY, MEDINA, OHIO

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Crop and Market Report

Compiled by M. G. Dadant

For our May Crop and Market Report, we asked our reporters to answer the following questions:

1. How are the bees coming out of winter?

What are the plant prospects generally compared to 1929?

3. How much honey is left on hand?4. Is this more than at this time last year?

Condition of Bees.

The country over we believe that bees have come out of winter quarters in considerably better condition than a year ago, although in some cases the winter losses have been as severe, if not more severe, than during the 1928-29 winter. The cases where the losses seem to be especially heavy have been in the plains regions and in the intermountain territory. Here the losses have in some instance run as high as 35% with the average loss from 15% to 20%.

The only other criticism of condition of bees has come

from some sections where the early warm weather had made the bees start brood rearing too early and the incident cold spells thereafter caused a cessation of

brood rearing.

In the southern states, the weather has been so very backward and so very few days in which bees could fly that there was a tendency toward dwindling and starvation. Colonies of bees were roaring strong, then came the period of cold and dearth and the condition of oees retrograded considerably.

In California the bees are in much better condition

than a year ago, although not nearly up to normal.

Honey Plant Prospects.

Throughout most of the eastern and north central states, honey plants prospects average at least as good as a year ago, and in many instances better. a few reports coming that the freezing and thawing of early spring has caused considerable heaving of clover, and clover, therefore, is not in nearly as good condition as a year ago. Other reports coming in about April 15 were to the effect that the ground was exceedingly dry and that clover was suffering. However, there have been general rains all over this area since and the clovers have benefited greatly thereby. We do not believe that conditions are quite as good in Ohio and Indiana as a year ago, and perhaps not in Michigan. In most other states, however, we believe conditions will approach a year ago.

In the southeastern states, there has been too much rain and too much cool weather and, as a consequence, beekeepers have almost completely lost some of the early honey crops. Bees are in good condition and if the weather has turned, by the time this is written, there may be still opportunity for a fairly good crop. The same conditions apply to Louisiana and Arkansas. Queen breeders have found very much difficulty in getting queens reared and packages shipped on account of the

very unfavorable weather.

In Texas, the same conditions have been general, although probably not to such an extent as in the south-

In the plains states, there does not appear to be quite as much sweet clover as a year ago, because of shortening of acreage and considerable plowing under of old

In the intermountain territory it is too early to get any idea of what future conditions will be, although many reports come in that the snow in the mountains will not furnish as much irrigation water as a year ago with prospects, however, of future snows before the settled weather comes.

The northwest coastal states seem to be in equally as good condition as does northern California. In southern California, the condition is very much improved over a year ago, with a partial crop in prospect. There has been, however, insufficient rainfall to warrant a very good

crop, and honey plants are suffering. There is still hope for a partial crop from the later blossoms

Honey on Hand.

The country over there is considerable more honey on hand than at this time a year ago when practically all honey was sold. This applies generally all over the United States, but in the New England states conditions are better than elsewhere. The Middle Atlantic states are practically sold out and the Southeast has very little honey left on hand, except Florida, which has much less than a year ago.

Texas is about on the equal of last year as to honey still on hand.

It is in the north central states, however, that the large carryovers are reported. These are in the hands mostly of the larger beekeepers, but also many small beekeepers are unable to dispose of their honey at a satisfactory price. Michigan seems to be particularly unfortunate in this respect.

South Dakota, both in the Black Hills and in the eastern section, also reports considerable large quantities of honey on hand.

We have no recent reports of the mountain states situation, although, of course, most honey is out of the hands of the producers there and in the hands of the cooperative shipping organization. It is our opinion, however, that there is probably 20% of the honey left on hand in this area, that is undisposed of.

It would appear that the situation has considerably improved over a month ago when our last crop and market report was dictated. It does seem that the demand has picked up considerably during the past month, perhaps partly due to the fact that business conditions are somewhat improving in the manufacturing areas where considerable of the honey is consumed.

We do believe, however, that one of our big difficulties this year has been that many of the producers have neglected entirely their home markets and their old avenues of sale relying on the larger markets to buy their honey in bulk or to be distributed through the different marketing agencies The German duty undoubtedly has had a very large effect also on the carryover because it has almost stopped importation, for the time being at

Summary.

All in all, the amount of carryover of honey does not seem to be oppressive, although, naturally, it will have its effect on the opening prices in the 1930 fall, unless disposition is made of more of the crop before the new crop arrives. We do believe, however, that a betterment in business conditions would far more than offset the carryover and be reflected immediately in honey sales.

Large producers do not seem to be scared out but are building up to their original numbers of bees and many of them are making increase. It is apparent that the very large producer who is working on a scientific basis is realizing a fair profit on honey at the price he has to sell.

The very small producers undoubtedly are going to have to push hard for their local markets, or else be satisfied to charge only a part of their time to the expense of their bees and to be satisfied with a very small margin of profit, unless conditions change. One of the solutions, of course, is a stronger effort for local markets and an effort at better cooperation between the different producers in the areas which do not engage in heavy commercial honey production.

Present indications would not point toward any bumper crop anywhere with conditions the equal of a year ago for total volume of honey produced in 1930.

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As a measure of precaution to our readers, we require references of all new advertisers. To save time, please send the name of your bank and other references with your copy.

BEES AND QUEENS

CAUCASIAN QUEENS for 1930 from imported mothers. One, \$1.50; six, \$7.50; twelve, \$14.00. Eighty-five per cent pure mated. Safe arrival and satisfaction guaranteed in U. S. A. and Canada. Tillery Bros., R. 6, Greenville, Ala.

YOUNG Italian queens and baby bees for your 1930 requirements. The price is right and it costs you nothing to book your order. One two-pound package with queen, \$3.25; ten, \$3.00 each; twenty-five, \$2.85 each; one hundred, \$2.75 each. Three-pound packages, \$1.00 each more. Good, heavy packages, shipped when you want then. No disease. Safe arrival guaranteed. The Stover Apiaries, Tibbee Station, Miss.

MY CHOICE queens by return mail. Threebanded Italian queens, each, \$1.00; six, \$5.00. Tested, \$1.50 each. Jul. Buegeler, Alice, Texas.

NONE BETTER than our seasonably reared Italian queens; \$60.00 per hundred. Write for circular. Stearns Bee Company, Brady, Texas.

WE appreciate your past business and solicit your queen and package business for this season. Prices on application. Louisiana Southern Bee Farm, R. 2, Baton Rouge, La.

GOLDEN Italian queens for 1930. The big, bright, hustling kind (the kind that get the honey). Satisfied customers everywhere. Untested, \$1.00 each; six, \$5.00; twelve, \$9.00; \$65.00 per hundred. Tested, \$1.50 each. Two-frame nuclei or two-pound packages, \$3.25 each; ten or more, \$3.00 each. Safe arrival guaranteed. Health certificate furnished. E. F. Day, Honoraville, Ala.

GOLDEN Italian queens producing golden bees; very gentle and good honey gatherers. State inspected. Satisfaction guaranteed. Tested, \$1.50; select tested, \$2.50; untested, \$1.00; six for \$5.40; twelve or more, 80c each. D. T. Gaster, R. 2, Randleman, N. C.

PACKAGE BEES—Two pounds full weight Italian bees with select untested queen for \$2.30, and three-pound package same for \$3.10, in hundred lots. Let us send our circular. Stearns Bee Co., Brady, Texas.

DIEMER QUEENS—Before June 1, \$1.25 each; after May 31, \$1.00. Write for price on quantities. J. F. Diemer, Liberty, Missouri.

PACKAGE BEES—Three-banded Italian. If you want bees that are gentle to handle, our bees will please you. Young queens and baby bees; half pound overweight in every package. Bees shipped in light, roomy cages. Syrup feeder in cage. Queen shipped inside of package bees in cage with queen on candy feed. Two-pound package with queen: 1 to 9, \$3.00 each; 10 to 100, \$2.75 each. Three-pound package with queen: 1 to 9, \$3.75 each; 10 to 100, \$3.50 each. State inspection certificate attached. Prompt delivery; satisfaction guaranteed. Little River Apiaries, Box 83, Gause, Texas.

Advertisers offering used equipment or bees on combs must guarantee them free from disease, or state exact condition, or furnish certificate of inspection from authorized inspector. Conditions should be stated to insure that buyer is fully informed.

BUY your queens from Allen Latham, Norwichtown, Conn.

GOLDEN Italian queens for sale. The same strain that has given satisfaction for over thirty years. One, \$1.00; six, \$5.00; one dozen, \$9.00. Health certificate with each queen. Satisfaction guaranteed in United States and Canada. E. A. Simmons Apiaries, Greenville, Ala.

BRIGHT Italian queens, ones that are guaranteed to please you or your money refunded. Untested, any number, 75c each; tested, \$1.00 each. Two-frame nuclei or two-pound packages, \$3.25 each; ten or more, \$3.00 each. Honoraville Bee Company, Honoraville, Ala.

THREE-BANDED Italian bees and queens.
Two-pound package with young queen,
\$3.00; ten or more, \$2.75 each. Threepound package with queen, \$3.75; ten or
more, \$3.50 each. Health certificate with
shipment. Safe arrival guaranteed. William
Piefer, Gause, Texas.

CHOICE, bright Italian queens that are a pleasure to work with and you will be proud to own. Requeen with stock that has been bred and selected in the North the past twenty-seven years for good wintering; hustlers, gentle, and fine color. One queen, \$1.00; dozen, \$10.00. Breeders, \$10. Emil W. Gutekunst, Colden, N. Y.

GOLDEN Italian queens. Untested, \$1.00 each, any number. Untested won't be ready until June 1. Tested of last year's rearing, ready now. Tested queens, \$2.00 each, any number. I will guarantee my queens in every respect. J. B. Brockwell, Barnetts, Va.

GOLDEN Italian queens. Producing large, beautiful bees, solid yellow to tip. Untested, \$1.25; selected tested, \$3.00 each. Two-pound package Italian bees, \$3.00. Deduct 5 per cent discount for quantity orders. Dr. White Bee Company, Sandia, Texas.

TWO-POUND package of bees with young queen, \$2.40 each; three-pound package, \$3.25, in quantities. See my large ad on page 253. H. E. Graham, Box 735, Cameron, Texas.

PACKAGE BEES-Hardy northern strain. Van's Honey Farms, Hebron, Ind.

GOLDEN Italian and Carniolan queens.
Tested, \$1.00; untested, 65c. Safe arrival
guaranteed. Write for prices on package
bees and nuclei. C. B. Bankston, Box 65,
Buffalo, Texas.

WARD'S Italian queens and package bees. Queens for May, \$1.00. Two-pound package and queen, \$3.25; three-pound package and queen, \$4.25. Postpaid to third zone. C. W. Ward, R. 1, LeRoy, Kans. Copy for this department must reach us not later than the fifteenth of each month preceding date of issue. If intended for classified department, it should be so stated when advertisement is sent.

A SPECIAL orchard pollinating package for orchardists, beginners, and heavy producers. Two pounds of Italian bees on two good standard Hoffman frames brood, bees and honey. An Italian queen, spring raised and introduced and laying as she comes to you; hole bored and corked in package, ready to set in orchard or hive stand and let go to work. Twenty years' experience as shipper and buyer of packages convinces me this is the best buy on the market today. Price, \$5.50 single package. Terms, one-fifth down for April and May delivery, f. o. b. Kenner. Prices on combless packages on request. No disease; health certificate attached. All shipments in regular approved standard packages. Six main line railroads to ship over. All queens raised by me in person; all packages put up by me personally. Have moved my apjaries back to the location Louisiana reconstruction apiaries, in the best beekeeping territory in South. Reference, any bee publication in U. S. Look me up when in New Orleans personally. Queens in season, \$1.00 each. Send for literature. No Canadian business solicited. Jes Dalton, Kenner, La. (In suburbs of New Orleans.) Eat your honey with Kellogg's cereals.

PURE Italian queens and bees. As good as the best. There is absolutely no disease risk here. Write for circular. Roy S. Weaver & Bro., Courtney, Texas.

ITALIAN bees and queens. Quality unexcelled. Also, I want you to have every ounce of good, live bees at your end of the line your order calls for. Also, unless weather conditions make it impossible, bees leave here on date specified. O. P. Hendrix, West Point, Miss.

THREE-BANDED Italian bees and queens, ready June 1. Two pounds with queen, \$4.00; three-frame nuclei with queen, \$5.00; full ten-frame colonies, \$15.00. Select untested queens, \$1.00 each; dozen lots, 75c each; \$60.00 per hundred. No disease, safe arrival and satisfaction guaranteed. My twentieth year. A. E. Crandall, Berlin, Conn.

EARLY PACKAGE BEES—Prompt shipment, beginning May 1. Two-pound package without queen, \$2.50; three-pound, \$3.50. Add price of queen if wanted. Choice, hardy Italian queens \$1.00; ten for \$9.00. Safe arrival guaranteed. Birdie M. Hartle, 924 Pleasant St., Reynoldsville, Pa.

IF you want gentle bees, good honey gatherers and beautiful to look at, my strain of golden Italians will please you. Prices: Untested, \$1.00; six, \$5.40; twelve to forty-nine, 75c each; fifty or more, 70c each, Tested, \$1.50 each. Circular on request. Health certificate, safe arrival and satisfaction. Hazel V. Bonkemeyer, R. 2, Randleman, N. C.

IMPROVE your stock and insure a crop by using our Line Bred Italian Queens, holding Indiana state comb honey production record for ten successive years. A trial will convince. Untested, 1 to 25, \$1.25; 25 to 100, \$1.15. Select untested, 1 to 50, \$1.50: 50 to 100, \$1.25. Guaranteed select tested, each, \$2.50. "Honeyville Queen Apjaries," Foothill Blvd., Rt. 1, Monrovia, California.

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SPECIAL—Queens, bred for honey. Italian-Golden, young queens, 90c each. Full 3-frame nuclei and queen, with brood and honey, \$3.90. Inquiries answered by return mail. Victor Prevot, Mansura, Louisiana.

RUSCHILL'S honey go-getting State Fair blue ribbon winning Iobred Italians. Un-tested queens, \$1.00; five or more, 55c each. Ready about June 1. Chas. H. Ruschill, Colfer Lore

CAUCASIAN QUEENS FOR SALE—After April 1st. Untested: One, \$1.50; six, \$7.00; twelve, \$13.00; twenty-five or more, \$1.00 each. Bred for honey production by The Tamiami Apiaries, Englewood, Florida.

GOLDEN Italian queens, producing large, hustling bees, very gentle and beautiful. A proven honey producing strain. Select untested queens after the 15th, one dollar each; 5 to 10, 90c each; 10 or more, 80c each. Select tested, \$2.50 each. Breeders \$10 each; service for season guaranteed. Safe arrival and satisfaction guaranteed on all queens. Circular on request. W. C. Wright, Holt, Missouri.

SIMMONS QUEENS—One, \$1.00; six, \$5.50; twelve, \$10.00. No disease; prompt de-livery. Fairmount Apiary, Livingston, N. Y.

THREE-BANDED ITALIAN QUEENS—1, \$1.00; 12, \$10.00. Health certificate with each shipment. G. K. Cannon, Pleasanton, Texas.

CAUCASIAN—Queens are very prolific.

Bees extremely gentle, superior fliers, longest tongues and lives of any race. The only red clover bee. Try them, be convinced. Untested, 1 to 5, \$1.50; 6 to 12, \$1.35. Send for free literature. Bird's Apiaries, Odebolt, Iowa.

ITALIAN QUEENS—Untested, ten, \$1.00 each; twenty-five, 85c each. More than twenty-five, 75c each. Satisfaction guaranteed. Ready to ship June 1 to June 10. R. B. Grout, Jamaica, Vt.

FOR SALE

FOR SALE—Two pounds bees and young Italian queen, \$2.50. Health certificate furnished. Satisfaction guaranteed. Write J. L. Leath, Corinth, Miss.

FOR SALE—Highest quality queen mailing cages. Used extensively by the largest queen breeders in the South. Samples and prices on request. Hamilton Bee Supply Co., Almont, Mich.

FOR SALE—In sunny California, 160-acre ranch; 95 colonies of bees; no disease. House and ranch mostly furnished. All for \$3500; \$1500 cash, balance easy payment. J. B. Hohmann, Stony Ford, Calif.

FOR SALE—100 colonies of Italian bees and entire equipment. Also offer my home for sale where these bees are located. This is a wonderful opportunity for someone, as this apiary is known as one of the best in the state. Having recently lost my husband, I am not able to care for same. Be glad to hear from anyone interested. Mrs. A. Coppin, Wenona, Illinois.

FOR SALE—20 colonies bees in eight and ten frame hives. Disease free, priced right. Hubert Rice, Memphis, Mo.

FOR SALE—10 colonies bees in 10-frame new hives, wired frames, with excluder and extra hive body with combs, inspected. \$8.50 each. Fred Hammerly, Albany, Wis.

360 half depth combs in good condition, guaranteed disease free, no disease in apiary. 8 combs with super, \$1.20. Without, \$1.00. Roger Lane, Trumansburg, New York.

HONEY FOR SALE

HONEY FOR SALE—Any kind, any quantity. The John G. Paton Company, 230 Park Avenue, New York.

FOR SALE—White clover honey in 60-pound cans. None finer. Satisfaction guaranteed. J. F. Moore, Tiffin, Ohio.

HONEY FOR SALE—All grades, any quantity. H. & S. Honey and Wax Company, Inc., 265 Greenwich St., New York City.

COMB, extracted and chunk honey in ten sizes glass containers and 2½, 5-, 10-and 60-pound tins. Livest labels in U. S. or plain. One of our special display cases with \$25 and \$50 orders. Write for free illus-trated circular showing our packages and free samples of honey. Griswold Honey Company, Madison, O., U. S. A.

WHITE CLOVER comb honey, packed eight cases to carrier. W. L. Ritter, Genoa, Ill., DeKalb County.

FOR SALE—Water white clover honey in new cans and cases, 8 cents pound. Virgil Weaver, Moville, Iowa.

FOR SALE—Extra choice white clover honey, case or carload; also amber. David Running, Filion, Mich.

HONEY (comb and extracted), pure maple syrup, maple sugar and sorghum molasses. Special price to quantity buyers. C. J. Mor-rison, 1235 Lincoln Way West, South Bend.

STURDEVANT'S CLOVER HONEY - St. Paul, Neb. Any quantity.

SHALLOW frame white comb honey and white extracted honey. The Colorado Honey Producers' Ass'n, Denver, Colo.

FOR SALE—Our own crop white clover and amber fall honey in barrels and cans. State quantity wanted and we will quote prices. Samples on request. Dadant & Sons, Hamilton, Illinois.

NEW CROP shallow frame comb honey, also section honey; nice white stock, securely packed, available for shipment now. Colo-rado Honey Prod. Ass'n, Denver, Colo.

HONEY FOR SALE — White and amber honey in 60-lb., 10-lb. and 5-lb. tins. Write for prices.

Dadant & Sons, Hamilton, Illinois.

FOR SALE—Northern white, extracted and comb honey. M. W. Cousineau, Moorhead,

WHITE Clover extracted honey. Write for prices and samples. Kalona Honey Co., Kalona, Iowa.

FOR SALE—Three cars white and white amber clover extracted, packed in sixties, 7c fob La Jara, Colo. Stahmann Apiaries.

FINEST quality white clover honey in new sixties. Martin Carsmoe, Ruthven, Iowa.

Michigan white clover honey of fine quality in new 60-lb. cans. One case of fifty. Also thirty cases white comb honey. Orval W. Dilley, Grand Ledge, Mich.

FOR SALE—Balance of my 1929 crop of clover honey in new sixty pound cans. Write for sample and prices. Elmer Ras-mussen, Exira, Iowa.

COMB HONEY—One No. 1 lot in carriers, 8 cases of 24 sections each, \$3.50 per case. Extracted honey, white clover, sweet clover, buckwheat. Write us about your needs. A. I. Root Company of Chicago, 224-230 W. Huron Street, Chicago, Illinois.

ONE CAN white clover, \$5.10. Cas Delbert Lhommedieu, Colo, Iowa.

EXTRACTED white at a reasonable low price to small bottlers or buyers, well strained and settled and free from impurities. A fine table honey, sample 15c. Geo. Sea-stream, Moorhead, Minn. A Producer.

FOR SALE—White clover honey in sixty-pound cans, 8 ½c per pound. Joseph H. Hoehn, Ottoville, Ohio

CLOVER honey, choice, ripened on bees. Satisfaction guaranteed Case or quantity, E. J. Stahlman, Grover Hill, Ohio.

FINEST white clover honey, 8c pound. Edward Klein, Gurnee, Ill.

HONEY AND BEESWAX WANTED

WANTED—Car lots of honey. State quantity, shipping point and price. Mail sample. Hamilton, Wallace & Bryant, Los Angeles, Calif.

WANTED—A car or less quantity of white honey in 60-lb. cans. Mail sample and quote lowest cash price for same. J. S. Bulkley, 816 Hazel St., Birmingham, Mich.

WANTED—Shipments of old comb and cap-pings for rendering. We pay the highest cash and trade prices, charging but 5 cents a pound for wax rendering. Fred W. Muth Company, 204 Walnut St., Cincinnati, Ohio.

SUPPLIES

SAGGED COMBS are result of slackened wires caused by wires cutting soft wood of frames. Use metal eyelets. Per 1,000, 60c. Handy tool for inserting eyelets, 25c. Postage 3c per 1,000. Superior Honey Co., Ogden, Utah.

COMB FOUNDATION—Note these prices on twenty-pound lots: Medium brood, 64c; thin super, 74c. Can furnish the new non-sagging foundation. Wax worked at lowest rates. E. S. Robinson, Mayville, N. Y.

MAKE queen introduction sure. One Safin cage by mail, 25c; five for \$1.00 Allen Latham, Norwichtown, Conn.

FOR SALE — We are constantly accumulating bee supplies, slightly shopworn; odd sized, surpluses, etc., which we desire to dispose of and on which we can quote you bargain prices. Write for complete list of our bargain material. We can save you money on items you may desire from it. Dadant & Sons, Hamilton, Illinois.

BEST QUALITY bee supplies, attractive prices, prompt shipment. Illustrated catalog on request. We buy beeswax at all times and remit promptly. The Colorado Honey Producers' Ass'n, Denver, Colo.

HAVE YOU any Bee Journals or bee books published previous to 1900 you wish to dispose of? If so, send us a list. American Bee Journal, Hamilton, Ill.

THE DADANT SYSTEM IN ITALIAN—
The "Dadant System of Beekeeping" is now published in Italian, "Il Systema d'Apicoltura Dadant." Send orders to the American Bee Journal. Price \$1.00.

BEE SUPPLIES—Big discount; freight pre-paid. Catalog free. J. W. Rouse, Mexico. Missouri.

SHIPPING cases, glass front, fibre liners, 25 for \$7.50; 50 for \$13.75; 100 for \$25.00. Hive stands, 10 for \$2.25. Supers for 4x5 secions complete, 5 for \$3.95. Send for bargain list. St. Louis Apiary Supply Co., Commercial Bldg., St. Louis, Mo.

FOR SALE—200 used 60-lb, honey cans, good condition. Forty cents per crate. FOB St. Louis. W. E. Wilson, 2659 Sutton Ave., St. Louis, Mo.

FOR SALE—Root 4-frame power extractor, \$30.00. 34 in. honey pump, \$10.00. 1½ H.P. Fairbanks Morse gas engine, \$15.00. Root wax press, \$9.00. All in good condi-tion. Ellsworth Meineke, Arlington Heights,

WANTED

WANTED-100 colonies, priced with 8c honey. Edward Klein, Gurnee, Ill.

YOUNG man, northern experience, desires position middle June in commercial apiary establishment. Michigan or Wisconsin pre-ferred. Milton Benner, Fort Deposit, Ala-

EXPERIENCED man wants work in com-mercial apiary, good references. Gilbert Anderson, College View, Nebr.

Additional Classified Advertisements Continued on Following Page

CLASSIFIED ADVERTISING (Con'd)

MISCELLANEOUS

PLANS for poultry houses; 150 illustrations. You need this book. Write for free offer and sample copy of "Inland Poultry Jour-nal," 51 Cord Bidg., Indianapolis, Ind.

SELL IT—Honey or bees or queens or second-hand equipment or pet stock or poultry, by advertising it in Gleanings in Bee Culture, Medina, Ohio, with its more than 20,000 paid subscribers. Rates: 7c a word classified; \$4.20 an inch for display advertising. That great beekeeper, George S. Demuth, is editor, for whose beekeeping teachings 20,000 beekeepers subscribe.

THE BEE WORLD—The leading bee journal in Great Britain and the only international bee review in existence. Specializes in the world's news in both science and practice of apiculture. Specimen copy, post free, 12 cents stamps. Membership of the Club, including subscription to the paper. \$2.55 (10/6). The Apis Club, Brockhill, London Road, Camberley, Surrey, England.

POSTPAID—12 Oxalis bulbs, rose pink, 15c. Ten assorted Dahlias, \$1.00. 25 rasp-berry plants, \$1.50; large heavy everbear-ing. 25 Mary Washington asparagus plants, Perennial seeds. Elkhurst Gardens. Zippel, Minn.

STATEMENT OF OWNERSHIP

Statement of the ownership, management, circulation, etc., required by the Act of Congress of August 24, 1912, of American Bee Journal, published monthly at Hamilton, Illinois, for April 1, 1930:

STATE OF ILLINOIS, County of Hancock,

Before me, a notary public in and for the state and county aforesaid, personally appeared M. G. Dadant, who, having been duly sworn according to law, deposes and says that he is the business manager of the American Bee Journal, and that the following is, to the best of his knowledge and belief, a true statement of the ownership, management, etc., of the aforesaid publication for the date shown in the above caption, rendered by the Act of August 24, 1912, embodied in Section 443, Postal Laws and Regulations, printed on the reverse side and Regulations, printed on the reverse side of this form, to-wit:

. That the names and addresses of the publisher, editor, managing editor and business manager are:

Publishers, American Bee Journal, Hamilton. Ill.

Editor, C. P. Dadant, Hamilton, Ill.

Managing editor, G. H. Cale, Hamilton, Ill. Business manager, M. G. Dadant, Hamilton, Ill.

2. That owners are:

C. P. Dadant, Hamilton, Ill. H. C. Dadant, Hamilton, Ill.

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That the known bondholders, mortgagees and other security holders owning or holding one per cent or more of the total amount of bonds, mortgages or other securities are:

(Signed) M. G. DADANT, Business Manager American Bee Journal.

Sworn to and subscribed before me this first day of April, 1930.

> MINNIE S. KING Notary Public.

My commission expires Nov. 19, 1933.

A Glance Through the South

(Continued from page 225.)

Mississippi-Clay Lyle, State Inspector of Apiaries, reports conditions almost identical to those in Louisiana.

Alabama-J. M. Cutts, of Montgomery, reports weather too cold to make up nuclei, or work with bees Colonies weak and starving, and the strong ones preparing to swarm, cold and wet all the time. Orders coming in nicely.

Florida-Robert Foster, the State Inspector, reports weather conditions cold and rainy, heavy citrus bloom, but bees could not work. There will evidently be a short orange crop for this season. Bees over the state in good condition and prospects for plants and honey flows good.

Georgia-Beekeepers of south Georgia are somewhat discouraged because of the rains and cold weather oontinuing for nineteen days with bees running short of stores, brood rearing going down and adult bees disappearing. Many, many, weak colonies, but no feeding has been done and could not be done on account of warm weather.

On this Monday morning, March 31st, it is bright and lovely and bees have started up once more. earliest spring honey plants have mostly bloomed and gone. We have a chance to make some honey, but can't hope to make an average crop.

In West Florida, along the Apalachicola river, I found beekeepers feeding bees everywhere in the rain and cold. It had to be done. main honey flow there comes two weeks sooner than in Georgia and they can hardly have a chance to make surplus because of the condition of the bees and advancement of the main honey plants.

West Florida and south Georgia will make between five and six thousand barrels of tupelo and black gum honey. If we don't make it, the market for this non-granulating honey will receive a blow such as it has never received before. Let us hope and pray .- J. J. Wilder.

Summing It Up.

In summing up, it would appear that along the Gulf, the early flow

was completely lost because of the weather conditions. Orders for package bees have been normal, but late. Weather conditions hindered queen breeding operations greatly and will retard shipping to some extent.

It is more than ever imperative that orders be booked early in weather conditions like the past month. Unless orders are in sight, the average shipper will not tear up and go into colonies to prepare for orders that have not yet come. But, if they are on his books, he will try to ship them out.

The first ten days of April have changed in weather and bee conditions greatly. Bees flying and storing some every day.

Meetings and Events

(Continued from page 243.)

4-5, the sessions well attended, more than 100 bee men showing up, for in truth, this is one convention that is greatly appreciated.

Reports of the various officers were read and approved and then H. McCombs of Sterling and D. A. Danielson of Brush, Colorado, explained honey grading methods.

Professor R. G. Richmond of the State Agricultural College, Fort Collins, told how, why and when to make inspections of the apiaries. Dr. A. P. Sturdevant of the United States intermountain bee culture spoke on: "Variation in Disease With Locality." N. L. Hopth Locality." N. L. Henthorne of Greeley, Colorado, addressed the meeting on business methods. Frank Rauchfuss, secretary, told of his impressions concerning the Milwaukee Convention ..

J. E. Eckert, of the United States intermountain bee culture laboratory, Laramie, spoke on: "The Flight Range of the Honey Bee." Professor A. M. Brinkley, Colorado Agricultural College, Fort Collins, spoke on "Fruit Pollination."

The usual banquet was held, the principal speaker being Mrs. John Wick, who entertained her audience.

Officers and Directors Elected.

George Miller, Littleton, Colorado,

Are You Asking... How Shall I Sell My Honey?

The answer is easy! Beekeepers are fast learning that the best market is the home market. Honey packed in attractive containers sells best.

Build up your local market. Decorate your grocers' shelves with rows of your choice honey neatly marked with your attractive label.

If you do not find a stock label in our catalog which meets your needs, send us your ideas and we will put them in color.

We also furnish stationery, business cards, selling helps, show cards, in fact all the printing needs of the beekeeper. Catalogues on request.

AMERICAN BEE JOURNAL, Hamilton, Illinois

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re-elected president; F. G. Rauchfuss, LaJara, Colorado, vice-president; Frank Rauchfuss, Denver, secretary-treasurer. Mr. Rauchfuss has been secretary for more than thirty years. Other directors are: W. T. Brand, Mitchell, Nebraska; J. A. Cornelius, Crook, Colorado; R. E. McPherson, Edgar, Montana, and C. C. Pierce, Bridger, Montana.

J. B. Dillon.

Idaho Bee Council Discusses

The Idaho Bee Council, composed of prominent southern Idaho beemen, met at Twin Falls early in March and outlined work leading toward licensing every beeman in the state.

The law passed by the 1929 legislature, provides that all beekeepers have licenses, no matter if the owner has only one swarm or several thousand. The bill was passed with a view to controlling the bee diseases, principally foulbrood.

Members of the council are Frank Beach of Burley, R. D. Bradshaw of Wendell, C. H. Stinson of Twin Falls, J. A. Redfield of Idaho Falls, and William McKibben of Boise.

G. P.

Notes From Utah.

At a meeting of the Utah County Beekeepers' Association at Provo, Utah, in February, Thomas Ball, of the Superior Honey Company and President of the Utah Association, said that the summer convention would be held at Fort Duchene in August, during the Uintah Basin Industrial Convention week. "Considerable educational work is planned for this meeting. Many demonstrations will be given during the three days on the extracting of honey, and other things."

It is interesting to note the growing interest among the Indians on the Uintah reservation in beekeeping. Many apiaries are owned and operated by Indian youths, whose excellent management vies with that of the white folks.

Hillman Urges Good Price For Honey.

D. H. Hillman, state apiarist, advises beekeepers not to sell their product cheaply. The survey made by the Government shows that the cost of producing a pound of honey in an apiary with less than 400 colonies, is seven cents and from apiaries of more than 1,200 colonies 5 1% c.

"We must accept this report as authentic," Mr. Hillman urges, "and make up our minds that whenever we sell our honey for less than 7c per pound we are simply providing ourselves with employment and making no profit.

"Honey prices are steady and have

a tendency to improve over prices received the last few years, due to a more orderly system of marketing, largely through the Mountain States Marketing Association which acts as a balance wheel for this intermountain territory. Prices we now receive for our crop just about cover the cost of production."

State Association Elects New Officers.

At the annual meeting in January at Salt Lake City, Mr. Ball of Ogden was named President to succeed J. C. Henager. J. R. Smith of Salt Lake was elected Vice-President, O. R. Baird of Provo, Secretary-Treasurer. These three with O. L. Malgren of Centerfield and S. W. Mower of Provo, constitute the directorate. There were approximately 75 in attendance at this meeting.

Mr. Ball reported that the outlook for 1930 honey crop was most favorable. The generous snowfall assures a nice clover crop. A marked improvement over last year when there was a scarcity of bloom.

G. P.

Bees In the Orchard.

Much interest has recently been manifested in the subject of bees in the orchard. A new bulletin has recently been issued by the extension service of Cornell University, Ithaca, New York, entitled "Honeybees for the Orchard" by Dr. E. F. Phillips. It contains 24 pages of information designed especially for the fruit grower who wishes to keep bees for their assistance in the pollination of his fruit plantations. Little space is given over to a discussion of the importance of bees, but instead the fruitgrower is told what he needs to know about securing and caring for them.

A Pollination Bulletin.

Cornell University has published another bulletin of interest to both fruit growers and beekeepers. It is entitled "Pollination and Other Factors Affecting the Set of Fruit," by L. H. MacDaniels and A. J. Heinicke. It contains 48 pages and goes into detail as to the various factors affecting pollination of fruits. There in a discussion of the place of bees in the orchard and information as to the peculiarities of various varieties. Copies can be secured from the Experiment Station at Ithaca, New York.

Choose Labels Wisely

You Can't Go Wrong with A-B-J Labels

They sell honey and are priced right. Send for complete catalog

AMERICAN BEE JOURNAL HAMILTON, ILL.

CARNIOLANS

are very gentle, very prolific, build up rapidly during the Spring, resist brood diseases well, build very white combs, and are most excellent workers. They are like an honest man, you can depend on them. Ask for our free paper.

CAUCASIANS

The hardy gray bees from the mountainous regions of the province of Terek, Caucusus, extremely gentle, prolific, longest tongues of any race of bees, excellent workers, and this strain does not propolize. Ask for circular.

ALBERT G. HANN

GLEN GARDNER

NEW JERSEY

THREE-BANDED QUEENS

55c ea. \$50.00 per 100 Satisfaction guaranteed

The Crowville Apiaries

J. J. SCOTT, Prop.

Rt. 1, Winnsboro, La.



A. B. PINARD,

810 Auzerais Ave.,

San Jose, Calif.

PURE ITALIAN BEES

2-lb Package with Queen, \$2.50 Untested Queens, \$.75 Tested Queens, \$1.25 Inspectors Certificate with Bees.

J. ALLEN, Catherine, Ala.

FOR SALE

ITALIAN BEES AND QUEENS

NOTHING BUT THE BEST QUEENS \$1.00 each, \$9.00 per dozen

1 lb. of bees with young queen, \$2.10 2 lbs. bees with young queen, \$3.60

All charges paid to your P.O. Discount on larger orders

GRAYDON BROS.

ROUTE 4 GREENVILLE, ALA.

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BEE **SUPPLIES**

When you buy RUSCH supplies you get OUALITY. SERVICE and

REASON-ABLE PRICES

Send us your orders and satisfy yourself that you have found the right place to buy bee supplies. Write for free catalog.

A. H. RUSCH & SON CO. REEDSVILLE, WISCONSIN

Time and a Honey Flow Wait for No Bee

Packages that arrive too late or for any reason fail to build up to full strength before the honeyflow are a very poor investment. Be ready to harvest a bumper crop this season. Let us ship you the best packages that you have ever used, in time to be of the most service to you. Two-pound package with queen, \$4.00; three-pound package with queen, \$5.00. Untested queens \$1.00 each. Write for description and complete price list, also prices on quantities.

Safe arrival and satisfaction guaranteed. Health certificate with each shipment.

> J. M. Cutts & Sons Route 1, Montgomery, Ala.

Thagard's Line Bred Imported Italians

Are gentler and wonderful honey gatherers. Our foundation stock came direct from Italy

Untested queens: 1 to 5, \$1.00; 6 to 12, 80c each; 100 up, 70c each. Two-pound package with queen, \$2.90; 12 to 50, \$2.75; 100 up, \$2.60 each

The V. R. Thagard Company, Greenville, Ala.

PETERMAN'S

Package Bees and Select Italian Queens

Tackinge Dees and Select Hallan Queens

Take no chances — buy from an honest and reliable breeder. I have been in the business over twelve years

Queens are large and select layers; leather color clear down, no bands. They produce three-banded workers.

1, \$1.00; 6, \$5.50; 12, \$10.00; 25, \$20.00; 50 or 100, 75c each

Package bees are young bees with drones screened out. They are fed on sugar syrup in transit and shipped in cages with screen four sides.

Two-pound package with queen:

Three-pound package with queen:

1 5 10 50 1 5 10 50

\$3.00 \$2.75 \$2.55 \$2.50 \$4.00 \$3.75 \$3.45 \$3.25

Safe arrival and satisfaction guaranteed

H. PETERMAN. Latheron. California.

H. PETERMAN, Lathrop, California

TRY OUR

Our queens are well selected Italians, leather colored, clear down, producing three-banded workers that cannot be beat. We personally rear all **OUR OWN** queens. All losses replaced, and satisfaction guaranteed.

1, \$1.00; 6, \$5.50; 12, \$10.00 25, \$20.00; 50 or more 75c ea.

We specialize in queens and honey production. No package bees.

IXL APIARIES

C. Bassett, Proprietor RIPON, CALIFORNIA and the second

PACKAGE BEES ITALIAN QUEENS

Write for Price List

W. A. WHITMIRE, Milton, Fla.

ITALIAN QUEENS

Good queens are indispensable to good beekeeping. We offer young Italian queens, the product of years of selective breeding in our own interests as large honey producers. Anything you may expect of fine queens cannot be too much for these truly excellent queens. At our prices you cannot afford to be without them.

Prices the year round: \$1.00 for one; two to twenty-four at 75c each; twenty-five or more at 60c each.

DAVIS BROS.

Courtland, Calif.

Sacramento Co.

OUR SPECIALTY

Queenless Packages

2 lbs. Bees, each \$2.00

For Strengthening Weak Colonies

Write Your Order for Immediate Shipment

QUANTITY UNLIMITED

Herron and Stone

Millerton

Oklahoma

THREE-BANDED ITALIAN QUEENS

FROM JOHN DAVIS STOCK

75c each, any number

Satisfaction Assured

D. C. JACKSON, FUNSTON, GA

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Remarkable Beekeeper of Indiana Dies

By Sister Saint Magdelen

American beekeepers will learn with regret of the death, on March 8, of Sister Ann Joseph Morris, who was for many years in charge of the apiary at St. Mary-of-the-Woods, Indiana, where numbers of novice beekeepers of Indiana learned valuable lessons in beekeeping. Sister Ann Joseph died Saturday afternoon, March 8, at St. Mary-of-the-Woods Hospital at the age of eighty-three. She was born November 7, 1847, at Loogootee, Indiana, and she entered the Congregation of the Sisters of Providence, August 18, 1871, when she was twenty-four years old. She had been a teacher in the public schools of the state for several years before her entrance into the Congregation. After her religious profes sion in 1874, she taught in the grade schools of the Sisters of Providence in both Indiana and Michigan; but, owing to failing health, she was given charge of the apiary, which, in the early '80's, was in an incipient stage. Birds, bees, and insects of every de-

scription were of special interest to Sister Ann Joseph, who was by education and by nature an excellent naturalist. She soon enlarged the apiary and brought about model conditions. Annually for many years the Vigo County Beekeepers' Association was wont to include in its beekeeping tour a visit to Sister Ann Joseph's well-kept apiary. Mr. Frank C. Pellett, associate editor of the American Bee Journal, writing on Indiana beekeepers a few years ago (1921), gave high praise to the apiarist at St. Mary-of-the-Woods: "A delightful hour was spent here. and a good-sized apiary was found in model order. The visit turnished excellent opportunity to inipress upon the novice how bees should be kept."

The model poultry farm now at St. Mary-of-the-Woods owes its existence also to the efficiency and skill of Sister Ann Joseph, whose faithful life of useful service came to a close March 8. The deceased religious was one of four sisters, all of whom were converts to the church and all of whom entered the Congregation of the Sisters of Providence. Sister Ann Joseph outlived her three sis-

ters. She is mourned by the community at St. Mary-of-the-Woods and by a number of nieces and nephews, among them Mrs. Kelly and Miss Clara Chandler, of Loogootee, Indiana; Mrs. Fred Dows, of Pond Creek, Oklahoma; Mrs. Hembre, of Shoals, Indiana, and Reverend Mr Morris, a Baptist minister of Vincennes, Indiana. Funeral services were held Monday morning, March 10, in the conventual Church of the Immaculate Conception and interment took place in the Sisters' cemetery at St. Mary-of-the-Woods.

St. Mary-of-the-Woods, Indiana.

New Publication

The Canada Department of Agriculture at Ottawa has recently issued a brief bulletin on the care of package bees. It is written by C. B. Gooderham of the Bee Division and is numbered Pamphlet No. 107—New Series. Those Canadians who are buying package bees for the first time will do well to write for a copy of this bulletin. The suggestions which it contains are likely to make it much easier for the novice to care for a shipment of live bees.

ORGANIZED IN 1928 AT COLLEGE STATION, TEXAS



This organization was formed with the interest of the purchasers of queens and package bees primarily in mind. No one is allowed to continue as a member of our organization against whom complaints have been justly made by purchasers of queens, or bees. You may order from our members listed below with confidence that your requests will be met promptly and satisfactorily or your remittance returned. Each of our members will be glad to quote you prices. Write them. Our secretary will be glad to answer any inquiries submitted. Address him, H. E. Coffey, Box 8, Whitsett, Texas.

List of Members

Caney Valley Apiaries, Bay City, Texas.
I. C. Eppright, Austin, Texas.
T. W. Burleson, Waxahachie, Texas.
E. P. Stiles, Houston, Texas.
G. K. Cannon, Pleasanton, Texas.
W. J. Henderson, Copperas Cove, Texas.

Roy S. Weaver & Bro., Courtney, Texas.

John A. Mercer, Bayside, Texas.
T. P. Robinson, Bartlett, Texas.
Valley Bee and Honey Company,
Weslaco, Texas.
Joe C. Hailey, Hughes Springs, Texas.

State Apicultural Research Laboratory, Route 1, Box 368, San Antonio, Texas. Ault Bee and Honey Company, Weslaco, Texas. R. V. Stearns, Brady, Texas.

BRAZOS VALLEY APIARIES BES AND QUEENS BRAZOS VALLEY APIARIES CAMERON, TEXAS

A strain of Three-band Italians with an unsurpassed record for honey gathering in all parts of the U. S. and Canada

Package bees, including young laying queens:

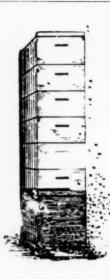
1 to 4 5 to 24 25 to 99 100 or more
2-lb. \$3.00 each \$2.50 each \$2.45 each \$2.40 each
3-lb. 3.75 each 3.35 each 3.30 each 3.20 each

For sixteen years I have shipped bees and queens in large quantities to every section of the U. S. and Canada and have very nearly reached the 100 per cent mark in successful delivery. Old customers took the major part of my entire output in 1928. Health certificate and all necessary invoice papers with all shipments. There has never been a case of

foulbrood in this county. All orders filled on date wanted. Absolute full weight with young bees. Drones screened out. Safe delivery guaranteed. In case of loss or damage in transit, I will replace without grumbling. All queens pure Three-banded Italians. Young and purely mated. Queens for packages shipped in queen cages among bees so each can be examined upon arrival.

You can pay more money but you can not get better bees or more honest service

H. E. GRAHAM, Cameron, Texas, P. O. Box 735



THRIFTY BEES

pile up extra supers of honey

Thirty-eight successful years of service to some of America's largest honey producers is convincing proof that we have served faithfully. Thirty-eight years of continuous growth in our business proves that beekeepers of America recognize and appreciate quality in a

This is why THRIFTY BEES are bred up to standard and not down to a price.

PRICES OF UNTESTED QUEENS

90 c each

12 to 50 80 c each 50 to 100 75 c each

100 up 70 c each

Let us mail you our booklet giving full price list of queens and our attractive prices on package bees.

W. J. FOREHAND & SONS FORT DEPOSIT, ALA.

Send Us Your Rush Orders

We are prepared to give quick service on all orders, large or small. Spring is late this year and will open with a rush. You will want your bees in a hurry. Just order from this advertisement and Prices, 2 lb. package with select, unget quick service. tested queen, 1 to 10, \$2.90; 11 to 25, \$2.85; 26 to 50, \$2.80; 51 to 100, or more, \$2.75.

Geo. A. Hummer & Son, Prairie Point, Miss.

ROOT SERVICE

CHICAGO

Beekeepers -- You May Profit

THROUGH USING EFFICIENT EQUIPMENT

Costs are reduced with increased production. Get the full crop by using Root Quality supplies.

Let us quote you on your needs.

Write now for our 1930 catalog

A. I. ROOT CO., OF CHICAGO

224 W. Huron Street, CHICAGO, ILL.

GASPARD'S HIGH QUALITY QUEENS and BEES

are now ready to book for spring 1930. The very best strain of Golden and Three-banded

Italians that can be produced. Prices as follows:

Special—A two-frame nucleus with three pounds of bees and a select young queen introduced, for \$4.50 each.

2-lb. package with select young queen—One to nine, \$3.00; ten or more, \$2.75 each.

3-lb. packages with select young queen—One to nine, \$4.00; ten or more, \$3.75 each.

4-lb. packages with select young queen—One to nine, \$5.00; ten or more, \$4.75 each.

Two- and three-frame nucleus with select young queens same prices as two- and three-pound packages.

Also combless packages shipped on sugar syrup in light, roomy cages, same prices as comb packages.

as comb packages.

Special discount on orders for fifty packages and nucleus or more.

All bees are shipped on standard Hoffman frames of brood and honey, except combless packages, a health certificate with each shipment. All loss will be immediately replaced upon receipt of bad order report signed by express agent. 20% books your order; balance at shipping time. Address

J. L. GASPARD, Hessmer, Louisiana

Mack's QUEENS 3-BAND ITALIA

Are the most scientifically reared queens to be found in America. Cells are grafted and given directly to queenright colonies to start and finfish. We use no swarm boxes or queenless or broodless colonies to start our cells. It took the bees 14 YEARS to tell us how to do it. The dumbest of dumb ought to learn something in that time, eh? But look at these prices:

Untested Queens, 75c each; \$8.40 a dozen; \$60.00 a 100

Guaranteed to please you in every way. Shipments start in May. We satisfy others and we can satisfy you. Let us book your requirements now.

HERMAN McCONNELL

(The Bee and Honey Man)

Robinson

Route 2

Illinois



The best in Bees and **Oueens**

1	2	lbs. with	queen	3	lbs.	with	queer
		\$2.90		1		\$3.8	30
		2.55		10		3.4	15
		2.45		25		3.5	35
		2.40		50		8.2	2.5
		2.35	1	0.0		9.1	15

Young laying untested queens \$1.00 each; 10 or more, 90c each; 100 at 75c each

Terms: 10 per cent with order; bal-ance before shipment J.W.DiLullo, Anderson, Cal.

SHAW'S BEES and QUEENS

Are Seldom Equaled and Never Surpassed Are Seldom Equaled and Never Surpassed No disease here—never has been. I ship in light cages on sugar syrup. All packages 10 to 20 per cent overweight when shipped. Young three-band Italian bees and queens. I guarantee all queens to be purely mated. I also guarantee you will get them when you want them. If there are any losses, I assume them and give prompt replacement or refund. Your orders booked without deposit. PRICES 2-pound package with queen...\$2.75 3-pound package with queen...\$3.65 Queens—One to ten. \$1.00.

Queens—One to ten, \$1.00. Ten to fifty, 85 cents. Fifty to one hundred, 75 cents.

A. E. SHAW, SHANNON, MISS.